ATTACHMENT A

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Section 251 Unbundling	)	
Obligations of Incumbent Local	)	CC Docket No. 01-338
Exchange Carriers	)	
	)	
Implementation of the Local Competition	)	
Provisions in the Telecommunications	)	CC Docket No. 96-98
Act of 1996	)	
	)	
Deployment of Wireline Services	)	
Offering Advanced Telecommunications	)	CC Docket No. 98-147
Capability	)	

Reply Declaration of Howard A. Shelanski

I. Facilities-Based Competition Benefits Consumers and Refutes Claims of Competitive Impairment

1. The UNE Fact Report 2002, submitted in these proceedings by Verizon, Qwest, BellSouth and SBC, clearly shows that there has been enormous growth in competitive local exchange facilities in the past three years. Proponents of expansive unbundling contend in their comments that unbundling should be preserved even where competitive entrants are providing their own facilities, are obtaining them from non-ILEC sources, or are competing using competitive services obtained from the ILEC. They argue in addition that emphasis on

facilities-based competition will lead to wasteful duplication of facilities, and that competitive entry is not sufficiently widespread to warrant repeal of any unbundling requirements. These arguments amount to a plea for continued unbundling even where the empirical evidence clearly demonstrates that there is no economic impairment to competitive entry. The Commission should reject such contentions. Instead, the Commission should undertake a market-by-market inquiry that examines competition in specific services and in specific geographic areas. That inquiry will demonstrate that there is in most instances no impairment to facilities-based competitive entry into local exchange markets. Both the Act and sound economic policy weigh heavily in favor of eliminating unbundling in such markets.

A. There is No Economic Basis For Unbundling Once Entry Without UNEs has Proven Possible

2. Some parties argue that unbundling should continue to be available even where facilities-based entry is occurring (s*ee., e.g.*, AT&T Comments at 254). This argument eliminates any economic meaning from "impairment" and would lead to distortions of competitive incentives. As an economic matter, impairment must at the very least mean that CLECs suffer some disadvantages relative to the ILEC that are sufficiently great that they could tip to the negative a rational CLEC's decision about whether or not to enter a local exchange market**.** Impairment must consist of more than the usual challenge of playing catch-up that any new entrant into a mature industry faces.

3. Importantly, the case for impairment is not made by a showing that CLECs merely face some costs that are higher than the ILEC's corresponding costs. As the U.S. Court of Appeals recently held in *USTA v. FCC*, No. 00-1012 (D.C. Cir. 5/24/02), impairment must mean something more than the cost disadvantages that new entrants usually suffer versus incumbents in any industry. From an economic standpoint, new networks will always face some initial expenses that incumbents do not at that same time have to incur, or may initially not share the same economies of scale or scope. Incumbents will already have equipment in place that a new entrant will have to purchase, and may have some economies that entrants do not initially match. Yet economists do not consider such entry costs to constitute a general "impairment" to entry. Initial cost disparities often are discrete and do not persist once entry has occurred. They may also be offset by advantages new entrants may have over incumbents. The firm investing later might get the advantage of more technologically advanced equipment which may erode the effect of any short-term cost difference between entrants and incumbents, and may benefit from other economies such as lower labor costs, the ability to serve larger areas, or to market selectively to the most lucrative segments of the market. Once CLECs have actually installed their own facilities, or once third parties have made such facilities available to CLECs, there is no basis for presuming that any incumbent's cost advantage will persist on a forward-looking basis.

4. Similarly, UNEs should not be required merely on the grounds that entry into a high-fixed-cost industry is risky for a new competitor. In many industries with high entry costs, competitors build facilities and prepare to compete with established firms well before they have any assurance of attracting a single customer. DBS providers did not sell unbundled cable service to develop brand name and a customer base before launching their satellites and building base stations. PCS providers did not rebrand conventional cellular service before spending hundreds of millions of dollars to set up their networks. Airlines like JetBlue, Southwest, and Alaska all made substantial capital outlays in advance of selling a single ticket. The point is that there is no empirical or theoretical basis for the argument that a new entrant must establish market share in advance of building facilities in order to have incentive to make the investments necessary to enter a market. Just because CLECs would *prefer* to build market share in advance of investing in facilities does not mean that absent such a risk-reducing option they would not invest in the capital necessary to compete against the ILECs. In any case, CLECs have other ways of building market share, such as resale or use of tariffed ILEC services, that do not entail all of the potential costs of an unbundling regime.

5. As an economic matter, the CLECs' plea for unbundling to coexist with facilities-based entry would, if granted, distort competitive incentives of both the facilities-based CLECs already in the market and of potential entrants. As I discussed in my initial declaration in these proceedings (at paragraphs 20-25), there are several

reasons that a CLEC might prefer using unbundled network elements to investing in its own facilities even in the absence of impairment. Continued availability of UNEs in the absence of impairment is therefore likely to undermine facilities-based investment.

6. Several commenters have challenged the argument that unbundling may chill facilities-based entry on the ground that facilities-based investment has occurred even where UNEs have been available. The declaration of Professor Kahn and Dr. Tardiff, attached to Verizon's reply comments, addresses these arguments in detail.

7. The fact that facilities-based and UNE-based entry co-exist in a market does not mean that the latter does not affect the former. Indeed, the data support the contention that the availability of the UNE platform (UNE-P) has had an adverse effect on facilities-based investment. The facts on the ground show that facilities-based investment by CLECs is *lower* in states with high volumes of UNE-P than in states with low volumes of UNE-P. AT&T's argument to the contrary (AT&T Brief at 61) is based on an incomplete picture that relies on data from just a few hand-picked states, and in some cases with data regarding only AT&T 's own investments, rather than those of CLECs as a whole. As explained in detail in the accompanying UNE-P and Investment Report filed by Verizon, Qwest, Bellsouth, and SBC, AT&T's arguments disintegrate once all available data are considered.

The facts refute AT&T's claims that UNE availability promotes facilities-based entry.

8. Nor should the Commission credit claims by some CLECs that UNEs should be preserved despite facilities-based entry because there is nonetheless impairment for new firms still trying to enter given local exchange markets. As competitors enter on a facilities basis, it is natural that subsequent firms will find entry more difficult. With every new competitor chasing the same customers, the pursuit of those customers becomes less economically attractive to other potential entrants. To argue that UNEs are necessary to allow continued entry even after facilities-based entry has occurred is essentially to ask the FCC for help overcoming impairment that is not due to ILEC incumbency but rather to the increasingly competitive environment of some local markets. Yet to treat the challenges posed by competition as "impairment" is to undermine the very objectives of the Act.

9. Indeed, as more competitive facilities enter the market, unbundling becomes less about impairment to entry against an established incumbent and more about helping successive entrants into an increasingly competitive and therefore challenging environment. Yet such a policy makes no sense because it: (1) punishes earlier entrants into the market, (2) fails to recognize that high fixed cost/low marginal cost industries can only likely absorb a limited number of firms, and (3) ultimately confuses genuine impairment with the lack of an attractive business case. Each of these points warrants some elaboration.

10. First, continued unbundling after facilities-based competition has emerged can punish early entrants by subjecting them to competition from rivals that do not bear the full, risk-adjusted costs of competitive entry and which therefore can artificially undercut the early entrants' prices. The only way this harm can be avoided is if regulated UNE prices are no lower than the level that precisely covers risk-adjusted UNE costs. As discussed in my direct testimony in this proceeding, such accuracy is most improbable as a practical matter. Moreover, any attempt to resolve the potential inefficiencies of unbundling through pricing is particularly unwarranted where market participants have already demonstrated that unbundling itself is not necessary for entry. If firms have found it economically rational to enter a market with their own facilities, unbundling will only foster more entry if regulators make it inefficiently cheaper than—and harmful to—the facilities-based entry that some firms have already shown to be efficient.

11. Second, it is also important for the Commission to take into account the economics of entry into an industry that has high fixed costs and low marginal costs of production. There will not be limitless entry into such markets. It is natural that entry will become more difficult for new firms the more firms have already entered a given local exchange market. To retain unbundling obligations just so that those newer entrants can still provide service would not, however, be sound competition policy. Such continued unbundling would not be based on

impairment to competition, but on "impairment" to particular competitors. Where competition exists, policies that favor particular firms, or classes of firms, which are unable otherwise to compete are likely to create inefficient entry. For that reason antitrust law has long recognized that antitrust injury must be premised on harm to competition, not to particular, would-be competitors.

12. Third, and related to the above point, impairment should not be confused with absence of an economic business case. It may be that some markets, either because the elasticity of demand for the good or service at issue is high enough to keep prices in check, because of existing competition, or because of regulatory factors (such as retail rates set at artificially low levels), provide little incentive for competitive entry. Indeed, the firm(s) that already serves that market may do so at a loss or at least with nothing above a normal profit. New entrants will likely avoid such markets, but not because the incumbents have some advantage that impairs competition that would otherwise occur and benefit consumers. Where such advantages do not exist, unbundling should not be mandated even if no competitors have entered the market. For in such cases it is the weakness of the business case, not the strength of the incumbent, which deters entry.

B. CLEC investment will produce benefits, not waste, for the local exchange market

13. Some commenters in this proceeding have argued that the Commission should not in its inquiry give due weight to evidence of facilities-based entry because such

competition may lead to wasteful duplication of local telephone plant.[1] They thus contend that unbundling should continue as a potentially more efficient alternative even where CLECs have installed their own facilities. The Commission should reject this argument.

14. In order for facilities-based competition to be a net waste, two strong conditions must hold. The parties claiming such waste can demonstrate neither one. First, it must be the case that introduction of new facilities raises the total costs of serving all consumers in the market at issue. Second, it must be true that the benefits to consumers of an additional competitor in the market do not offset the alleged increase in cost created by the new facilities. Moreover, those conditions must hold with respect to specific network elements, not just for an integrated local exchange network as a whole. Unless proponents of extensive UNE regulation can demonstrate that these conditions hold, the Commission should reject their broadside contention that extensive unbundling provides a necessary alternative to "wasteful" and inefficient facilities-based entry. No filing in this proceeding makes that showing and it is most unlikely that either condition holds for most UNEs.

15. Even if one could show that building an entire new, integrated network would be inefficient, it does not hold that building selected new *elements* of a network would be wasteful. It may be, of course, that it would not make economic sense to

[1] ALTS Comments at 18-19, 44-45; Eschelon Comments at 10-11.

build second POTS loops in some areas (although even this is questionable going forward since second "loops" are emerging now in the form of upgraded cable systems and wireless providers). But it does not follow that competitive switching or transport facilities in those same areas would be inefficient. Inefficient duplication must therefore be rigorously demonstrated on an element-by-element and market-by-market basis. Waste of resources by facilities-based competitors is an unlikely economic outcome that cannot be casually bandied about.

16. In addition to being improbable, the duplication argument undermines a fundamental premise of the Telecommunications Act, which is that the scope of natural monopoly in the local telephone network is limited and perhaps nonexistent. As the Supreme Court has explained, the 1996 Act stood as a rejection of the idea that the local exchange was a natural monopoly:

> Until the 1990's, local phone service was thought to be a natural monopoly. . . . Technological advances, however, have made competition among multiple providers of local service seem possible, and Congress recently ended the longstanding regime of state-sanctioned monopolies.[2]

Congress thus clearly wished CLECs to introduce competitive facilities to the extent it is economically feasible to do so and to limit the natural monopoly portions of the network, if indeed any proved to exist, as much as possible. Broadside allegations that facilities-based competition creates wastefully "duplicative" costs thus fly in the face of the Act's premises and cannot support

[2] AT&T Corp. v. Iowa Utilities Board, 525 U.S. 366, 370 (1999).

continued unbundling where competitive facilities have proven economically feasible.

II. Proper Definition of Relevant Markets is Essential to a Correct Determination of Economic Impairment

17. The fact that many new entrants are building their own facilities strongly suggests that some competitors are finding cost advantages—and hence efficiency rather than waste—in building their own facilities. But that efficiency gain is not even the relevant economic point for purposes of unbundling regulation under the 1996 Act. Once competitive facilities actually exist, the relevant inquiry under the Act is what those facilities show about the ability of CLECs to enter the local exchange market without resort to ILEC networks. The evidence presented already in this proceeding strongly suggests that for switching, transport, and high-capacity loops, many competitors find it in their interest to build their own facilities and that doing so creates no impairment to their entry into the local exchange market.

18. Given the diversity of service and market characteristics in local telecommunications today, it is impossible to make a "one size fits all" determination of competitive impairment for local exchange services nationwide. The fact that new entrants may be impaired in providing service in a particular rural market, for example, says nothing about whether that same impairment exists in other, perhaps more densely populated, markets. Moreover, impairment

in providing POTS does not mean there is impairment in providing competitive broadband or special access services. It is therefore essential for the Commission to examine unbundling at the level of specific service and geographic markets and that it define those markets correctly.

19. Correct market definition will not always mean a narrowing of focus. For example, consider broadband services. The Commission has in the past considered whether unbundling is necessary to overcome competitive impairment in the provision of broadband services that compete with the ILECs' DSL offerings. The Commission has concluded that lack of access to unbundled packet switching does not generally create impairment sufficient to warrant unbundling but that lack of access to the upper frequencies of the ILECs' loops does significantly impair competitors. The market for broadband services, properly defined, contains more than just ILEC DSL services and must include intermodal competition from cable modem services and other platforms as well. An economically correct impairment analysis must take into account this competition if it is to advance consumer welfare, and if it is to promote competition rather than simply competitors.

20. For dedicated services like special access or transport, there is also little evidence that unbundling is necessary to overcome any competitive impairment. As the 2002 UNE Fact Report filed in this proceeding demonstrates, there are substantial competing facilities for the ILECs' transport, dark fiber, and high-capacity loop

plant. Competitors needing those facilities have third party suppliers and, moreover, are shown by the evidence to be able economically to build their own facilities to compete with those of the ILECs.

21. In fact, CLECs have been able to obtain special access services facilities from the ILECs themselves even without unbundling. The ILECs provide special access services on a tariffed basis and CLECs as well as IXCs have been taking advantage of those offerings. As an economic matter, if tariffed special access services constitute an effective substitute for a dedicated transport UNE—in this case meaning the CLECs are able to enter and compete using those services—then there is no economic "impairment" if dedicated transport as a UNE is unavailable.

22. With respect to switched local services, the unbundling inquiry should take account of distinctions among specific markets. The economics of competitive entry differ depending on demographic and geographic features of a market. The fact that there may not be as extensive competition in some markets as in others should not suffice to demonstrate impairment so broadly that unbundled facilities must be made in those markets where there are no meaningful barriers to facilities-based competition. It might be that some CLECs choose to target their offerings to particular kinds of customers in a market. But that selectivity should not be confused with impairment in serving other classes of customers. The

equipment CLECs use to serve high-revenue customers can just as easily be used to serve lower revenue customers that the CLEC chooses not to pursue.

23. It is particularly important in the unbundling inquiry that product markets not be defined so narrowly that the competitive analysis ignores substitute services. Just as it would be a mistake to assess unbundling of broadband-related network elements without taking cable modem service into account, it would be incorrect to examine the switched, local service market without considering the competitive impact of wireless service. Is there intermodal competition between wireless and wireline telephone service that renders unbundling of the latter unnecessary? A consumer-oriented and pro-competitive policy depends on such a searching inquiry.

24. The importance of a detailed analysis of impairment on a market-by-market, service-by-service, and element-by-element basis undermines arguments that the Commission should preserve the so-called "UNE-P" or UNE platform. If there is no economic impairment to entering a market without unbundled access to a particular element, then there is no basis for allowing a CLEC to have unbundled access to that element when it is purchased in combination with other elements. Allowing such a UNE platform would turn impairment analysis upside down, and potentially keep all UNEs under the unbundling regime so long as impairment stemmed from any one of them. The likely result will be to deter investment in facilities even where such investment is viable. This cost of preserving the UNE-

P is not offset by any benefit to consumers. The ability of CLECs to purchase ILEC services for resale under the 1996 Act essentially means that no CLEC will be impaired if it does not have access to the UNE platform. So the Act provides alternative routes for the benefits that the UNE-P is supposed to yield.

25. Finally, even in those markets where competitive entry has not occurred, it is important for the Commission to determine whether the absence of competition is due to impairment or to the lack of a compelling business case for new firms, as already discussed above.

26. A market-by-market examination that takes into account the evidence of impairment for specific services and geographic areas will lead to a more efficient unbundling regime and to local exchange markets that better serve consumers. As the evidence presented in this proceeding clearly demonstrates, CLECs face no impairment in entering many markets using many, if not all, of their own facilities. There is no sound economic reason to continue unbundling in such markets just because in some other markets the Commission finds that there is impairment without access to those same elements.

III. Changes in the Economy should not Affect the FCC's Unbundling Decisions.

27. The Commission should not use unbundling as a tool to counteract the economic cycle that has caused the recent shake-out in the telecommunications industry.

Although I do not here purport to undertake a rigorous analysis of the different causes of that shake-out, it is quite clear that firms (even large incumbents in various sectors) are facing hardship that has nothing to do with competitive impairment. Over-investment, large debt burdens, unwise business expansion, incorrect demand predictions, and technological change have all been major factors in the current industry shakeout.

28. Policies that promote continued, rapid entry for its own sake or that artificially maintain viability for failing firms are likely to have counterproductive effects in the current environment, for several reasons. First, any policy that provides a safety net or entry path for firms whose business plans are weak will ultimately exacerbate the problem of firm failures. Second, such a policy will harm those competitors that are proving to be sound and enduring through the economic cycle and that have made the strategic decisions necessary for long-term survival. Third, the Commission should not add to the ILECs' unbundling risks by making the obligation to provide UNEs at all contingent on economic cycles. Indeed, the economic downturn affects not only CLECs, but the ILECs too, so relative impairment does not necessarily change with economic downturns. But even if relative impairment does change temporarily, it makes no sense to add burdens to the ILECs during a period of economic vulnerability in order to prop up firms that have not proven viable.

29. In sum, shake-outs are a normal and inevitable event in the life of any industry. They are particularly likely where, as here, there has been the potent combination of major regulatory change, radical change in technology, and significant changes in the nature and volume of consumer demand. The Commission should not interfere with natural shake-outs that market changes bring by using unbundling to provide a safety net for firms whose business plans proved weak or who simply have not proven sufficiently efficient and competitive to survive changes in the economic cycle. Using UNE policy to preserve firms that have not proven viable will harm those competitors that are surviving the changing economic cycle in telecommunications and risks rewarding and perpetuating the inefficiency of those firms that otherwise would have and should have left the market.

DECLARATION

I declare that the statements made above are true and correct to the best of my knowledge.

Howard A. Shelanski 7/15/02

Howard A. Shelanski

ATTACHMENT B

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Section 251 Unbundling	)	
Obligations of Incumbent Local	)	CC Docket No. 01-338
Exchange Carriers	)	
	)	
Implementation of the Local Competition	)	
Provisions in the Telecommunications	)	CC Docket No. 96-98
Act of 1996	)	
	)	
Deployment of Wireline Services	)	
Offering Advanced Telecommunications	)	CC Docket No. 98-147
Capability	)	

Reply Declaration of
Alfred E. Kahn and Timothy J. Tardiff

I. Introduction

1. The purpose of this declaration is to reply to the economic arguments and factual assertions of economists supporting the positions of the competitive local exchange carriers, with primary emphasis on Professor Willig, who provided the most voluminous economic commentary.[1] Their main arguments are that local exchange competition has been slow to develop and that competitors will require continued, if not expanded, access to incumbent

[1] Declaration of Robert D. Willig, Attachment F to the April 5, 2002 Comments of AT&T Corporation in this proceeding.

local exchange carrier facilities at regulatorily prescribed prices.[2] We disagree not only with their pessimistic assessment of the robustness of competition for local exchange and broadband services, but also with their recommendations that unbundling obligations be not only preserved but effectively expanded, to facilitate efficient telecommunications competition.

2. In essence, informed by his glum assessment of how competition has progressed and particular competitors have fared, Professor Willig's analysis and recommendations amount to advocacy of unlimited protections and preferences for CLECs, virtually unlimited in scope and time, on "infant industry" grounds. Based on his claim that they suffer from substantial disadvantages in the provision of *facilities*, his proffered remedies amount to a series of protections of unspecified duration that would have the effect of perpetuating essentially subsidized, purely retail competition? effectively, mere resale of the ILECs network services—at the expense of efficient competition itself and, specifically, at the expense of the development of facilities for competing at both wholesale and retail levels.

3. A particularly stark example of such a distorting protection is the ubiquitous availability of the unbundled network element platform (UNE-P). UNE-P is an oxymoron. What it requires be available to competitors is the *totally bundled* "'unbundled' network elements" necessary to produce the service at wholesale—not fundamentally different from what is involved in the resale separately provided for in the Telecommunications Act. Professor

[2] In particular, as we discuss below, Professor Willig suggests that total element long-run incremental cost (TELRIC) prices be applied even after ILECs have made very large new investments, such as upgrading their networks to include more fiber facilities. The economic analysis in support of Worldcom's arguments endorses TELRIC in essentially the same way. Richard A. Chandler, A. Daniel Kelley, and David M. Nugent, "The

Willig (par. 56) essentially acknowledges that the UNE platform is, at best, a somewhat enhanced version of resale: in addition to permitting CLECs to offer the services of the ILECs, in "competition" with them, it also allows them to add new local service packages and pricing options. The fact that this form of entry is essentially mere cream-skimming of regulatorily-distorted rates necessarily raises the question: is this the kind of competition that the 1996 Act contemplated? According to the FCC, CLECs that use ILEC inputs predominantly do not deploy any network facilities of their own: as of June 31, 2001, almost three-quarters of the 12.3 million UNE and resold lines used by CLECs were resale or UNE-Ps, even though CLECs have widely deployed their own switches. Of the same character is his proposed continuation of subsidized or cream-skimming arbitrage opportunities, such as the restoration of reciprocal compensation for call terminations, and the opportunity to substitute equivalent services priced at TELRIC for ILEC services that are in fact available competitively (e.g., EELs for special access), and expanded mandatory unbundling at TELRIC prices even after ILECs have invested in network improvements to increase their offer of new (e.g., broadband) services.

II. Competition, Both Facilities- And Non-Facilities-Based, Has Progressed Since The Last Review Of Unbundling Requirements

4. Professor Willig's review of the recent development of local exchange competition (par. 85-97) emphasizes the financial difficulties the CLECs have experienced since the early part of 2001. While he does recognize that these firms have continued to increase their customer base and deploy their own facilities, he apparently views these more as a cause of

---

Technology and Economics of Cross-Platform Competition in Local Telecommunications Markets," HAI

financial distress than a reflection of successful competition. Our interpretation of this experience is that

- the growth in competition and deployment of competing facilities demonstrate that CLECs can indeed compete on a *facilities basis*;
- this growth in facilities-based competition calls for relaxation of the ILECs' unbundling requirements, including UNE-P, not their perpetuation and expansion, as he recommends (par. 132);
- the cycle of exuberant over-investment and subsequent losses in telecommunications over the last several years, while unusually severe in that sector, was certainly not unique among high-tech industries. On the contrary, it is a normal part of the competitive experience, particularly in industries characterized by a high degree of capital intensity.

Indeed, overly accommodative access to ILEC facilities may well have contributed to both the CLECs not making even greater use of their own facilities and at the same time to the financial distress that Professor Willig laments.[3]

5. The opening comments of the various parties, particularly the "UNE Fact Report," as well as earlier local competition reports by the FCC and other parties demonstrate rapid growth

---

Consulting, Inc., Attachment A to Comments of Worldcom, April 4, 2002, in this proceeding.

[3] In particular, some observers have noted that the market-wide tendency for investors to provide funds on the basis of rapid growth (or growth projections) that proved not to be sustainable (i.e., "more firms starting up than could ever be viable," Larry Darby, Communications Daily, May 20, 2002, p. 3) was exacerbated by overly favorable access to ILEC facilities, which encouraged even more entry than could profitably be sustained. See, for example, Thomas M. Lenard, "The Economics of the Telecom Meltdown," Progress and Freedom Foundation, February 2002 and Jerry A. Hausman, "Competition and Regulation for Internet-related Services: Results of Asymmetric Regulation," in Robert W. Crandall and James Alleman, editors, *Broadband: [De]Regulating High Speed Internet Access*, AEI-Brookings Joint Center for Regulatory Studies, 2002 (forthcoming).

in competition along many dimensions. The growth has not been uniform: in particular, because residential rates still tend to be much lower than business rates relative to their respective costs, CLECs generally serve a markedly larger share of the latter market than the former: according to the UNE Fact Report,[4] they serve approximately 30 percent of all business lines but only about 10 percent of residential lines. This fact alone suggests that whatever disappointment there may be with the growth in competition for residential customers must be attributed primarily to the several retail rates being out of balance with their respective costs, rather than to insufficiency of the access of CLECs to the underlying facilities of the incumbents. Of course, by the same token, the rapid extension of CLECs into the business market clearly reflects in important measure the other side of this imbalance.

6. Between 1998 and 2001—the two years for which the most recent data were and are available to the Commission, respectively, in 1999, when it last reviewed unbundling requirements, and today:

   - The number of lines served by CLECs wholly or partially over facilities they have deployed themselves" tripled from between 5.08 – and 6.08 million in 1998 to between 16 and 23 million in 2001 (Fact Report at I-5). [5]

---

[4] *UNE Fact Report 2002*, Attachment to the Comments and Contingent Petition for Forbearance of the Verizon Telephone Companies, April 5, 2002, in this proceeding. P. I-6.

[5] UNE Fact Report, p. I-5, calculated at the middle of the range presented in Table 3. This trend is broadly consistent with data reported by the Association for Local Telecommunications Services (ALTS—a CLEC trade association), which show lines increasing from 5.6 million to 19.5 million over the same period. ALTS, *The State of Local Competition 2002*, April 2002, p. 17. In contrast, Chandler, et al. *op. cit.*, p. 13, report that CLECs had only 3.3 percent of all lines by the middle of 2001, which would account for 5.9 million lines, based on data reported by the FCC. That figure represents only lines provided exclusively with CLEC facilities—if UNE loops without ILEC switching are added, the figure increases to 9 million. Even this figure is much lower

- Voice switches owned by them have increased from 700 to 1,300.[6]
- Their fiber-optic facilities increased from 100 thousand to 184 thousand route-miles.[7]

7. Even more significant, the current financial distress of CLECs has not resulted in anything remotely approximating a cessation of investment. On the contrary: according to ALTS, their capital expenditures amounted to about $12 billion in 2001, and they anticipate another $10 billion this year—levels comparable to annual capital expenditures of the entire cable television industry, firms in which are upgrading their networks to compete for data and voice customers.[8] Indeed, the CLECs' total capital expenditures of $65 billion over the five years 1997 to 2001 were 50 percent of the level of investment ILECs reported to the FCC over the same period and the $12 billion in the final year was 40 percent of the ILECs' level for that year.

8. Professor Willig is of course factually correct in pointing out that the market value of publicly-traded CLECs has plummeted. Regarded in the context of contemporaneous events in similar parts of the economy as well as the historical experience in other industries, however, the long-term significance that he places on these developments is much greater than they deserve.

---

than the number of CLEC lines using at least self-provided switching of about 20 million reported in the UNE fact report.

[6] UNE Fact Report, p. I-1. ALTS, p. 16, reports approximately the same figures: 579 in 1998 and 1,224 in 2001.

[7] UNE Fact Report, p. I-1. ALTS, p. 17, reports an even greater increase: from 108 thousand in 1998 to 340 thousand in 2001.

[8] ALTS, *op. cit.*, p. 11.

9. First, as in other high-technology sectors of the economy, the market values of the CLECs reached truly dizzying—with the benefit of hindsight, we can see widely unrealistic—heights. For example, Crandall reports that at the end of 1999, the market capitalization of publicly traded CLECs alone was $95 billion (a figure that does not include the local operations of AT&T and WorldCom)—about the same as the Big 3 automobile manufacturers combined and three times that of the entire airline industry.[9]

10. The experience of the removal of barriers to entry into a network-based industry being followed by both entry and exit and periods of financial distress for significant segments of the industry is far from unprecedented.[10] The current concern over the conditions of the CLECs (and other firms, such as WorldCom and Qwest, that have experienced similarly sharp declines in their market values) is reminiscent of the conditions in the domestic airline industry in the early 1990s. Following a period of extremely high profits and acquisition of far too much capacity, on the one side, and deceleration in the growth of demand on the other, the industry lost some $13 billion in those first four years—more, its spokesmen proclaimed, than the entirety of the profits it had earned from the time that the Wright brothers first flew at Kitty Hawk—lending plausibility to previous contentions that the industry was chronically subject to destructive competition. Yet, despite the widespread calls for re-regulation or large amounts of financial assistance, profits increased far above previously achieved levels in the latter half of the '90s, and we are aware of no particular

[9] Robert W. Crandall, "An Assessment of the Competitive Local Exchange Carriers Five Years After the Passage to the Telecommunications Act," June 2001 (revised January 2002). Available at http://www.criterioneconomics.com/documents/Crandall%20CLEC.pdf.

reason to suppose that the same would not have happened after the present recession, but for the events of September 11th, which had a particularly catastrophic effect on this industry.

11. The fact that CLECs have continued collectively to expand their facilities during the recession and serve an increasing number of subscribers demonstrates that there has been no "over-investment" in the sense that their facilities will go unused. In particular, a number of them (e.g., ICG) have reorganized under bankruptcy protection and expanded their operations;[11] and other firms have acquired the assets of some of the unsuccessful entrants: AT&T acquired Northpoint's, WorldCom acquired Rhythms's, and IDT Corporation acquired Winstar's.[12]

12. In summary, the most important outcome of the previous three years has been not their current general financial distress but the fact that the CLECs are gaining subscribers and becoming established facilities-based competitors, especially in the service of business customers.[13] Probably of even greater significance—considering the essential role of technological progress in this industry—is the fact that local exchange services are being provided by mobile wireless and cable television companies. As to the former, mobile

---

[10] Indeed, years ago, in discussing the financial distress in the trucking industry during the 1930s, one of us identified "overly optimistic anticipations that typically induce excessive entry into a young industry" as a major contributing factor. Kahn, *Economics of Regulation*, Vol. II, p. 181.

[11] In a recent interview, ICG Communications CEO, Randall Curran, observed that while his company had reorganized, he anticipated growth rates of 10 to 20 percent per year, and had in fact expanded into four metropolitan areas at the same time it was reorganizing. ("ICG Rises from Industry Ashes, Expects Other CLECs to Follow," *Telecommunications Reports*, April 1, 2002.)

[12] UNE Fact Report, Table 5. This is of course not to ignore the catastrophic declines of very large companies such as WorldCom associated with highly questionable financial practices—a phenomenon far from unique to telecommunications—witness, for example, Enron, Xerox, and Tyco.

customers and usage continue to grow at rapid rates;[14] and the increasing attractiveness of wireless services has made them an economic substitute for both traditional local and long-distance calling.[15] As to the latter, cable telephony, which also requires no sharing of ILEC facilities, is starting to make significant inroads. Currently, about 10 million households have cable telephone services available to them and about 20 percent of them (2 million) have chosen it. Of course, availability of this alternative is greater in some areas than others. When Verizon-Rhode Island obtained Section 271 approval for interLATA service, its regulators observed that 75 percent of households had this cable TV option. Moreover, cable telephony is expected to grow rapidly, with analysts reporting that cable telephony has achieved penetration rates on the order of 30 percent where it is available[16] and anticipating approximately 10 million circuit-switched and an additional 5 million packet-switched (IP telephony) customers by mid-decade.

13. In contrast to the growth in subscribership to both the CLECs and "intermodal" providers, such as wireless and cable telephony, the number of lines served by ILECs is actually declining. While the number of their total switched access lines did increase between 1998

---

[13] For example, the UNE Fact Report (p. I-5) indicates that by the end of 2001, CLECs served about 20 million business lines—about 80 percent of these with at least some of their own facilities.

[14] Subscribership increased from 109 million to 128.4 million in 2001 and minutes of use increased by 75 percent. There was more usage in the first half of 2001 than in the entirety of 2000. *Communications Daily*, May 21, 2002, pp. 6-7.

[15] Recent articles describe how between 10 and 20 percent of consumers use mobile phones as their primary phones and that while consumers report declining expenditures for both local and long distance, wireless expenditures continue to grow. See, for example, "Analysts: Wireless Displacement of Wireline Services Will Rise," *Telecommunications Reports*, May 6, 2002. p. W-2 and "Wireless Replacement Gains Momentum," *RCR*, June 17, 2002, p. 18.

[16] "Cable's Program Extends Beyond TV," *Investors Business Daily*, May 16, 2002, at A6.

and 2000, their loss of lines in 2001 more than completely erased that growth, to such a point that the numbers in 2001 were below where they had been three years earlier.[17]

14. Far from the recommendations that Professor Willig draws from it, if the experience with the development of competition for local telephone services in the period since the Commission's last UNE appraisal justifies any change in its prescriptions with respect to the identification and pricing of UNEs, it justifies reducing, rather than expanding, the encouragement they provide entrants to enter these markets using facilities of the incumbents rather than their own. In particular, the findings from the UNE Fact Report and other filings in this proceeding show that CLECs (1) have installed increasing numbers of their own switches, which they have used to provide services to both business and residential customers; (2) an increasing number of CLECs have deployed more fiber-optic transport facilities in wirecenters that serve large proportions of ILEC lines[18] (3) are predominantly serving business customers with their own loop facilities, particularly for high-capacity loops, and (4) are providing service to residential customers not only with unbundled loops, but with cable and wireless. The ability of other carriers to compete in larger metropolitan areas is clearly no longer "impaired" if they do not have access to

[17] FCC, *Trends in Telephone Service*, Table 8.1 shows that total ILEC access lines increased from 180.5 million to 188.6 million between 1998 and 2000, but declined to 179.7 million by 2001. Indeed, Chandler, et al., *op. cit.*, p. 29 note that "significant numbers of households are replacing second lines with either wireless phones or broadband access," i.e., intermodal competition is at least a partial explanation of ILEC line loss. Unfortunately, they seem to contradict themselves (and their valid factual observation) later (p. 51) when they dismiss wireless as being adequate for only a limited number of wireline subscribers.

[18] UNE Fact Report, Chapter III. In the 25 largest metropolitan statistical areas of each of the four RBOCs, at least one CLEC has fiber-optic collocation facilities in wirecenters that account for over 60 percent of ILEC lines.

unbundled switching or transport by the ILECs.[19] Further, because special access is available either competitively or at tariffed rates nationwide and is a close substitute for the ILECs' unbundled transport, CLECs have successfully used ILEC tariffed special access services as a vehicle to compete for customers that require dedicated transport. Consequently, there is no basis for a finding that they would be impaired in their ability to compete if they could no longer lease those same ILEC facilities at UNE prices. Even unbundled loops have become decreasingly necessary for competition. Under these circumstances, mandatory UNE-P is indefensible and should be eliminated, rather than continued and expanded.

III. "Infant Industry" Protections and Preferences Should Not be Extended

A. Providing CLECs with artificially favorable access to UNEs will not produce efficient competition

15. Professor Willig's assessment of the current state of competition in telecommunications as feeble, precarious and inadequate is the basis for his recommendations that the present obligations of the ILECs to assist its further development be expanded and present

---

[19] With respect to those areas where CLECs have already deployed facilities, one of us concluded in the last UNE review proceeding that:

> In the case of transport, CLECs have placed facilities in areas where demand is concentrated—that is, contiguously with the largest ILEC wire centers. In these areas, they rely predominantly on their own facilities—or facilities provided by other CLECs—as transport inputs. Transport is therefore manifestly not an essential input in these areas.

Declaration (on behalf of Bell Atlantic and GTE) of Alfred E. Kahn In response to Second Notice of Proposed Rulemaking, CC Docket No. 96-98, May 26, 1999, par. 29.

The expansion of CLEC transport facilities in the subsequent three years has undoubtedly expanded the number and size of areas where it is no longer an essential input. This expansion has evidently been sufficiently robust to suggest that that CLECs can and do deploy competitive transport facilities in any area they have customer demand. (For example, the UNE Fact Report at III-3 reports that it would be economical for competitors to deploy fiber facilities in wire centers that contain 84 percent of all business lines.)

restrictions on the CLECs' use of these facilities removed. That is to say, in effect, he regards all existing and potential CLECs as infants that have substantially-to-dramatically higher unit costs in almost all circumstances because of their limited opportunity to exploit economies of scale (par. 14) and scope and unable to overcome the first mover advantages of the ILECs. This assessment leads him to conclude that absent UNE-P competition, there would often be no competition at all. Taken to its logical conclusions, his competitive assessment seems to imply that (1) the substantial facilities-based competition that has emerged, especially for business customers, is a chimera and (2) not even UNE-P competition would be possible unless the UNE-P rate provided a large discount relative to the corresponding retail rate.

16. In addition to the fact that the assertedly "enormous" cost advantage conferred by scale economies is belied by the facilities based-entry that has actually occurred, the supposed corresponding disadvantage of the CLECs seems to be based on the notion that they would attempt to provide ubiquitous coverage. The notion that they would or should be expected to duplicate ILEC networks, which have evolved over time and have reflected their obligations to provide ubiquitous service, is absurd.[20] Professor Willig (par. 20) cites an

[20] In particular, Professor Willig's claim in par. 67-72 that ILECs have large scale advantages is based on Dr. Clarke's application of a particular cost model (the HAI) to hypothetical carriers that serve an entire area, starting with the ILEC's wirecenter locations, but with uniform market shares well below 100 percent (Attachment B). Chandler, et al. *op. cit.*, p. 62 describe an equally flawed application of the HAI Model. This, of course, is not how CLECs enter and deploy facilities: Dr. Clarke's model results imply that the entry that has occurred shouldn't have. Therefore, even if the HAI Model produced reasonable estimates of an ILECs cost (which we have argued elsewhere, it does not: Alfred E. Kahn, Timothy J. Tardiff and Dennis L. Weisman, "The Telecommunications Act at Three Years: An Economic Evaluation of its Implementation by the Federal Communications Commission." *Information Economics and Policy*, Vol. II, 1999, pp. 319-365), Dr. Clarke's entry assumptions do not match what has actually occurred; his results are therefore meaningless. More generally, as the Circuit Court of Appeals for the D.C. Circuit recently pointed out, the relevant question for determining whether an entrant has a cost disadvantage that impairs its ability to compete is whether more than one firm can operate at an efficient scale, i.e., whether or not natural monopoly conditions prevail), and not

estimate of $180 billion as the investment required totally to duplicate ILEC networks.[21] The report by ALTS (see note 5) that CLECs had invested over one-third this amount in the past five years helps put this supposedly appalling figure into perspective. Free from any obligation to provide ubiquitous coverage and to price on the basis of average costs,[22] the CLECs already enjoy a very significant competitive advantage, attested by the enormous investments they have actually made in providing service in the low-cost, cross-subsidizing markets.

17. The asserted first mover disadvantages of the CLECs include their need to set up systems for billing and other back-office services, the need to accumulate knowledge about consumer behavior, to establish a strong brand identity, and so on. On the other hand, they have the advantage, to which we have already referred, of the ability to cream-skim—i.e., to concentrate on the artificially profitable markets and/or target the most profitable customers.[23] Moreover, as Professor Shelanski points out, citing such examples as new

---

whether an entrant has higher cost early on because it has yet to achieve efficient scale. (*United States Telecom Association, et al. v. Federal Communications Commission*, May 24, 2002 "DC Circuit Opinion").

[21] This figure translates into roughly $1,000 per line to duplicate each of the ILECs' 180 million end-user lines. The required investment may be even lower for some technologies. For example, Chandler, et al., *op. cit*., p. 27, provide a figure of $500 of incremental investment per subscriber to provide telephony over cable television facilities.

[22] Indeed, in overturning the FCC's interpretation of the "necessary and impair" standard for unbundling, the DC Circuit Court observed that :

> But it is in the other segments of the markets, where presumably ILECs must charge above cost…in order to offset their losses in the subsidized markets, that the gap in the Commission's reasoning is greatest. In finding that CLECs' lack of access to each of the many elements 'materially diminish[ed]' their ability to provide service, the Commission nowhere appears to have considered *the advantages CLECs enjoy in being free of any duty to provide underpriced service to rural and/or residential customers and thus of any need to make up the difference elsewhere*. *Ibid.* (emphasis added)

[23] For example, Chandler, et al., *op. cit*., p. 28 describe how AT&T Broadband telephone offers are targeted to high-end residential customers.

airlines, providers of digital broadcast satellite services (DBS) (competing with cable television), personal communication service (PCS), competing with the original cellular providers, that while start-up costs are of course one handicap of market entrants, such costs are on the one side ubiquitous and, on the other, consistent with effective competition.

18. That Professor Willig's ascription to CLECs of prohibitive "infant company" disadvantages is clearly belied by the nature of these potential competitors, such as AT&T and incumbent cable television companies, which enjoy economies of scale and scope of their own and could expand them by adding local exchange services to their existing offerings—having already incurred many of the start up costs in their core services and achieved strong brand identities of their own.

19. The ascription of prohibitive "first mover" disadvantages to CLECs that take advantage of the UNE-P option is particularly simplistic. As Professor Willig acknowledges (par. 56), UNE-P is effectively a version of resale more favorably priced than the resale mandated by the Telecommunications Act, for markets in which retail prices have been held far above cost. And while both versions do of course entail some of the start-up costs that he mentions, those costs are minimal compared with the advantage that the explicit resale requirements of the Act, amounting to little more than any start-up company would need to make to distribute a retail service to its customers, offers them. One of us (Kahn) has previously written on this very matter, when observing that the availability of wholesale inputs under the Telecommunications Act has rendered retail services effectively contestable:

> To be sure, that characterization may exaggerate the perfection of the consequent contestability of those markets. Presumably the challenging reseller would have to put in place some sort of interfaces to purchase services from the incumbent and make marketing contacts with customers and arrangements for billing them, incurring some costs that would be irretrievable upon its withdrawal from the market. (The notion of a competitive entrant having to be spared even the costs of contacting potential customers and billing them would reduce the concept of contestability to an absurdity.) But billing could always be purchased as needed and, therefore, involve no sunk cost. Resellers could also contract out for marketing as well, under terms that, similarly, would make those costs avoidable. And for AT&T or MCI, already covering virtually the entire interLATA market, those incremental costs of adding such consumer contacts for purposes of selling intraLATA and local services as well—adding some lines to their advertisements and bills—must come as close to zero as can be conceived in the real world. As the entry and continued existence of some 500 resellers of long distance services attest, these barriers to entry and exit must be close to minimal.[24]

20. We have already raised the question of whether the entry via UNE-Ps, essentially mere cream-skimming of regulatorily distorted rates, is the kind of competition that the 1996 Act contemplated. Professor Willig attempts to justify its continued broad availability as a temporary bridge to full-blown facilities competition (par. 80 and 141). Not only does he offer no empirical support for this supposition; the evidence demonstrates the opposite:

    - CLECs that use the UNE-P in fact *are not shifting customers to their own facilities in the manner that he describes*. The UNE Fact Report[25] and the attached analysis (Appendix 1) by our NERA colleague, Harold Ware, do not disclose such migration on a substantial scale. The typical pattern, instead, is for CLECs to serve customers—primarily business customers—exclusively as facilities-based providers[26] or with UNE-

[24] Alfred E. Kahn, *Letting Go: Deregulating the Process of Deregulation*, Michigan State University, The Institute of Public Utilities, 1998, pp. 56-57.

[25] Page I-9 and II-17 to II-20.

[26] The UNE Fact Report defines "facilities-based" as carriers that deploy their own switches.

P/resale, but not both; and there is no evidence of a general tendency for the latter to shift over time toward the former. According to the FCC, CLECs that use ILEC inputs predominantly do not deploy network facilities: as of June 30, 2001, almost three-quarters of the 12.3 million UNE and resold lines used by them were resale or UNE loops with switching. In addition, contrary to the suggestion that residential customers tend to be migrated to CLEC switches once they achieve a critical mass, the UNE Fact Report shows that neither AT&T nor WorldCom has done so in New York, where they have obtained enough UNE-P residential customers to efficiently fill switches and deployed switches on a wide scale to serve business customers. Professor Willig apparently believes that it is uneconomic for CLECs to serve residential customers (or any customer using voice-grade loops) with their own switches. He goes so far as to assert that he is unaware of any CLEC doing so (par. 138). As the UNE Fact Report shows, his understanding is incorrect—CLECs (including the cable telephony operations of his client, AT&T) serve over 3 million residential lines with their own switches.[27] Under these circumstances, rather than continuing and extending widespread availability and use of UNEs, the pro-competitive policy would be to reduce and eventually eliminate mandatory sharing obligations when and where facilities-based competition has demonstrated that they are no longer essential.

[27] General Communications provides local exchange services to both business and residential customers in Anchorage, Alaska's largest city, and in several other parts of the state, predominantly using a combination of its own facilities and UNE-loops *only*. (See Comments of General Communications, April 5, 2002, in this proceeding). In fact, it has captured 40 percent of the customers in Anchorage and actually has a market capitalization almost three times that of the ILEC (ACS) from which it obtains its loops. At a minimum, CGI's success demonstrates that UNE-P is not necessary for CLECs to compete for residential and small business customers.

- As shown in Dr. Tardiff's attached Appendix (Appendix 2) and by the paper, "UNE Platforms and Investment," attached to Verizon's Reply Comments, Professor Willig's claim—in purported refutation of our assertions that low TELRIC rates encourage free riding on the facilities of the incumbents and by so doing discourage investments by CLECs in their own facilities—that AT&T has made larger investments in New York than California (par. 107), even though New York has lower UNE-P rates, does not withstand careful scrutiny. In fact, (1) the lion's share of AT&T's investment in switches occurred well before it started making any significant use of UNE-Ps in New York, in late 1999 and (2) CLECs in total have in fact made greater investment per line in switches (on a per line basis) in California.

21. Apart from his cursory assertion that the availability of UNE-P at low rates has encouraged CLEC investments, Professor Willig devotes considerable attention to the even more remarkable claim, based on the econometric study he and his colleagues presented in Exhibits 2 and 3, that low UNE-P prices actually encourage *ILEC* investment (par. 106-122 and, e.g., Exhibit 2, par. 29). The purported mechanism of this supposed causal relationship is that (1) lower UNE prices encourage entry by CLECs—measured simply by their numbers rather than aggregate investments in facilities—and (2) this spurs the ILEC to invest more in its facilities (presumably to maintain the attractiveness of its services in the face of increased competition). In the attached Appendix, in the preparation of whose detailed observations and criticisms we have collaborated closely, Dr. Tardiff explains why, in his judgment Professor Willig's correlations can not support his conclusions.

22. We observe at the outset, however, that "high" and "low" UNE-P charges have meaning only in relation to some standard. Suppose states measure TELRICs more or less consistently, following the FCC's instructions. In that event, differences among states in Commission-prescribed charges would reasonably be presumed to reflect differences in their actual costs, state to state. In these circumstances it would be logical to interpret those rates as being neutral as between states in their relative proportions of CLEC facilities-based competition: what possible explanation could there be for there to be a greater ratio of CLEC construction of their own facilities in states where the costs *both* of entry via UNE-P leasing *and* of constructing their own facilities are low and a smaller role for CLEC entry by building their own facilities where both UNE charges and the costs of independent construction are high?
23. The other plausible meaning of "high" and "low" UNE-P prices would be in relation to the prices of the services that lease of those inputs would permit a CLEC to offer. Presumably lacking such a composite index, Professor Willig plausibly employs an average revenue per residential customer as an explanatory variable. But it, implausibly, turns out to have a negative sign—a fact the significance of which Dr. Tardiff further explores in his Appendix.
24. We have already (par. 3, above) cited, as an example of Professor Willig's advocacy, in effect, of uneconomic arbitrage of regulatorily-distorted rate structures, his advocacy of the restoration of reciprocal compensation payments between ILECs and CLECs, which have led the latter to concentrate their competitive efforts on ISPs, with their preponderance of local call terminations over initiations, on the ground that ILECs need this windfall to

support their entry and expansion. Another example of his infant industry promotional proclivities is his advocacy of EELs (enhanced and expanded loops). As one of us pointed out in the previous UNE review,[28] EELs are nothing more than a TELRIC-priced version of special access services. These services have been competitive for years,[29] in partial testimonial to which the FCC has provided a mechanism that allows ILECs' prices to respond to market conditions when they have made a showing that sufficient competition prevails.[30] Obviously unsatisfied with the FCC's determination that competition can produce reasonable prices for these services,[31] Professor Willig would stand on its head the well-established regulatory prescription that prices set by regulation should emulate those that would be produced by competition: he apparently believes that even when regulators have determined that competition is or may be sufficiently strong to produce reasonable prices, those outcomes should be ignored (when the market prices fail to emulate ones set

[28] Reply Declaration (on behalf of Bell Atlantic and GTE) of Alfred E. Kahn In Response to Second Notice of Proposed Rulemaking, CC Docket No. 96-98, June 10, 1999, par. 23-25.

[29] Competitors earn about 30 to 40 percent of special access revenues. The UNE Fact Report, p. III-1.

[30] FCC, In the Matter of Access Change Reform, CC Docket No. 96-262, Price Cap Performance Review for Local Exchange Carriers, CC Docket No. 94-1, Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers, CC Docket No. 98-63, Petition for US West Communications, Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona, MSA, CC Docket No. 98-157, Fifth Report and order and Further Notice of Proposed Rulemaking, August 27, 1999.

[31] Professor Willig repeats the CLECs' complaints that ILECs have increased prices after gaining price flexibility. The FCC has recently considered and found that these claims had no merit, observing that there had been no complaints that the rates were unreasonable. (FCC, In the Matter of Petitions for Pricing Flexibility for Special Access and Dedicated Transport Services for Ameritech Operating Companies, CCB/CPD No. 01-32, Pacific Bell Telephone Company, CCB/CPD No. 01-33 and CCB/CPD No. 02-03, Southern New England Telephone Company, CCB/CPD No. 01-34, Southwestern Bell Telephone Company, CCB/CPD No. 01-35, Memorandum Opinion and Order, April 11, 2002 , par. 11)

by regulators using TELRIC) and price regulation effectively re-imposed in the form of lower-priced equivalent services constructed from UNEs.[32]

25. We believe it both inconsistent and anomalous that Professor Willig's advice, when confronting the issue of whether cable operators such as AT&T should be required to provide access to others, was that there should be no mandatory access and certainly not at TELRIC prices. If, contrary to that urgent advice, cable companies were to be required to share these broadband facilities with competitors, he supported a much more generous standard for the price that that Company would be permitted to charge for access to the facilities it has since acquired from TCI (and in the process explicitly rejected TELRIC): supply cost plus *full opportunity cost*, all the more anomalous in view of the much larger market share in broadband of that company than the ILECs.[33]

B. Broadband Services

26. Professor Willig advocates maintaining and expanding[34] the ILECs' obligations to unbundle network facilities that competitors might use to provide mass market broadband services. Not only do his justifications lack merit; his proposals would discourage the

[32] See, Kahn, *Letting Go*, pp. 99-101 for further discussion of why market-based prices are superior to TELRIC rates.

[33] Declaration of Professors Janusz A. Ordover and Robert W. Willig, attached to AT&T's and TCI's Joint Reply to Comments and Joint Opposition to Petitions to Deny or to Impose Conditions, *In the Matter of Joint Application of AT&T Corp. and Tele-Communications, Inc. for Transfer of Control to AT&T of Licenses and Authorizations Held by TCI and its Affiliates or Subsidiaries*, CS Docket No. 98-178, November 13, 1998. Ordover and Willig provided a very expansive definition of full opportunity cost. It would account for not only foregone net revenues but also the reduced value of investment consequent on losses in indirect revenues.

[34] He goes so far as to advocate that unbundling at TELRIC prices be employed when ILECs have upgraded their networks to provide new fiber capabilities (at. par. 166).

intensifying competition for broadband services? a race in which cable providers (such as his client, AT&T, enjoy a substantial lead).

27. At the outset, we emphasize that obligations that increase a competitor's cost, reduce its expected revenues and/or increase the riskiness of its operating environment will (1) reduce the expected return of any particular investment compared to *what it would have been absent the obligation*[35] and (2) place the producer with these unique burdens at a disadvantage relative to unfettered competitors. Consequently, Professor Willig's arguments are equivalent to the (incorrect) propositions that (1) whatever distortions asymmetric obligations might have caused are too small to worry about and/or (2) there are offsetting benefits in the form of enhanced "intramodal" competition.

28. As we pointed out in our opening declaration,[36] the mass market broadband services of the ILECs are only one among several competing platforms (providing what Professor Willig labels "intermodal competition") and their services lag very substantially behind those provided by the market leader, cable modems. The latter have maintained a lead on the order of 2:1 for a number of years and are expected to maintain it into the future. The notion that other competitors that merely piggy-back on the ILECs' *broadband* facilities are necessary for competitive provision of these new services—in contrast with ones that lease

[35] For example, as we discuss in greater detail below, Professor Willig claims that ILECs invest in broadband not because of the profits they expect from offering new services, but to protect whatever profits they earn from second lines in the face of competition from such other facilities-based broadband providers as cable modems. Even if this explanation were valid, the fact would remain that unbundling obligations (at prescribed TELRIC prices) would force them to share the profits "preserved" in this way with competitors using unbundled elements. The net effect could only be to erode the incumbents' incentives to invest in broadband capabilities.

[36] Declaration of Alfred E. Kahn and Timothy J. Tardiff, Attachment to Verizon's Comments and Contingent Petition for Forbearance of the Verizon Telephone Companies, April 5, 2002.

unbundled loops and add their own enhancements or that build their own capacity to compete at the retail level—makes no economic or common sense because:

(1) ILECs' services (primarily digital subscriber lines or DSL) account for only about one-third of all broadband lines and (2) the data CLECs (DLECs) that use ILEC loops to provide these services account for only about 10 percent of those lines—which means they serve less than five percent of total broadband demand. Given the great uncertainty about the ultimate prospects of these companies, it is unclear whether they will or can be a major competitive force[37]—particularly as contrasted with the CLECs that have invested billions of dollars in their own fiber optic network facilities, primarily in metropolitan areas, in order to compete directly for retail customers.

29. Professor Willig's attribution of the increase in DSL prices in 2001 to the weakening in intramodal competition is incorrect not only because DLECs have never been (and may never be) a major competitive force, but for a number of additional reasons thoroughly expounded by Drs. Carleton, Sider and Bamberger in their submission in the Commission's broadband proceedings.[38] First, as those witnesses have shown, the timing of the decision

[37] The largest DLECs, Covad, Rhythms, and Northpoint, experienced a decline in market value from tens of billions of dollars in 1999 to eventual bankruptcy for all three. Covad has reorganized and continues to operate and even add customers, while the assets of the other two providers have been acquired by other carriers. The financial distress of these companies has led some observers to question whether a broadband firm that relies on UNEs can ever be a successful business proposition. See, for example, Hausman, *op. cit.* and Steve Ulfelder, "The DLECs' Demise," *Network World Fusion*, January 7, 2002. The possible doom of the DLECs illustrates that unbundling policies targeted to particular types of competitors can be very costly. Not only have ILECs expended large amounts of money to accommodate DLECs (Howard Shelanski, "Competition and Regulation in an Evolving Network Industry: The Case of Broadband Communications," in Robert W. Crandall and James Alleman, editors, *Broadband: [De]Regulating High Speed Internet Access*, AEI-Brookings Joint Center for Regulatory Studies, 2002 (forthcoming)), but the benefits from increased long-distance competition were delayed, because of the large role that satisfying the "competitive checklist" with respect to broadband services ultimately played in securing interLATA entry authority under Section 271.

[38] In the matter of Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services, cc Docket No. 01-337, April 22, 2002.

of ILECs to increase DSL prices appears to have been unrelated to the financial distress of the largest DLECs: the two largest declared bankruptcy *after* the price increases.

30. Second, Professor Willig neglects to mention the fact that *cable* modem prices increased by comparable amounts in 2001[39]—that is, before the ILECs' price increases. Thus, even if he were not factually incorrect in his account of the temporal sequence of DLEC financial distress and ILEC price actions, his reasoning seems to be based on the premise that the DLECs, with their under five percent of broadband customers, have been the critical force holding down prices of all broadband providers, not just the ILECs.[40] This argument is not only inconsistent with the facts, it is inconsistent with Dr. Willig's own previous testimony in which he cited intermodal competition in justification of his strong opposition to the proposed imposition of sharing requirements on cable modems.[41]

31. Carleton, et al. provide a persuasive refutation of the proposition that the 2001 price increases reflect the insufficiency of competitive forces to restrain broadband prices to competitive levels. Such a conclusion seems to be incorrect. They point out that (1) the 2001 increase followed a series of steady price decreases (the latest of which had been in

---

[39] See, for example, ALTS, *op. cit.*, p. 19, which shows that cable modem prices increased more in both relative terms (12.3 percent versus 9.5 percent) and absolute dollar amounts ($4.82 versus $4.49).

[40] A somewhat similar attempt to ascribe large competitive significance to DLECs is the allusion of Chandler, et al., *op. cit.*, p. 84 to the history of wireless competition. They argue that DLECs could have the same impact on prices that new PCS entrants had on wireless prices, i.e., the increase in competitors from two to as many as six or seven in wireless is analogous to the additional pressure DLECs would exert on the prices charged by ILECs and cable modem providers. A more plausible interpretation of this history is that it was the additional *facilities-based* entrants that provided the price reductions and these were the result of less, not more, regulation. (see our opening declaration, pars. 15-17). The proper analogy would be that DLECs resemble the cellular resellers that provided service before PCS was available and these providers evidently were much less powerful in driving prices down.

[41] Ordover and Willig, *op. cit.* We raise this point only to illustrate the implausibility of Professor Willig's argument. We do not advocate any increase in the regulation of cable modems. As we explained in our opening comments, we advocate deregulation of all broadband services.

place for less than one year) and (2) while some ILECs increased the rate of the lowest-priced ("basic") DSL service, they decreased prices for higher-capacity DSL services.[42]

32. Professor Willig supplies a myriad of disconnected and sometimes contradictory arguments in support of his contention that unbundling obligations have not discouraged broadband investment by ILECs, and would not in the future. First, he says that broadband demand is quite limited (par. 166); but later cites an observation that DSL has experienced one of the highest rates of technology adoption ever seen (par. 181) and that ILECs have recently invested billions of dollars each year to provide it (par. 180).

33. Indeed on a per customer basis, ILECs must invest more to upgrade their networks than do cable providers.[43] Thus Professor Willig's earlier admonition that sharing obligations would inhibit the incentives of cable operators to invest in broadband (Ordover-Willig, *op. cit.*) would seem to be even more applicable to investments by ILECs.

34. Further, while Professor Willig evidently acknowledges that ILECs have recently invested billions of dollars in broadband capacity, he seems to suggest that the job may be close to complete,[44] because substantial proportions of customers can already be served by broadband. (par. 180) This impression is incorrect. As we observed in our opening declaration and as the UNE Fact Report describes in greater detail, in order to offer

[42] Professor Willig's focus on basic rate increases alone, in the present context, seems inconsistent with his defense of the increases in basic long-distance rates by AT&T and other long-distance providers on the ground that in assessing the efficacy of long-distance competition it is necessary to consider also the decreases in prices for larger users.

[43] The UNE Fact Report, p. IV-21, footnote 110 lists costs of $470 per subscriber for cable modems and $800 for DSL.

[44] Chandler, et al., *op. cit*, p. 95, similarly ignore the investment that will be required to expand and improve broadband services.

broadband services that will provide the greater bandwidth that customers are expected to demand, ILECs (and cable providers as well, who currently can serve even a greater proportion of subscribers than can ILECs) will have to push fiber facilities deeper into the network. This will require large, risky investments.

35. Thus, Professor Willig's observations regarding broadband demand and ILEC investments must mean he is saying that the sharing obligations imposed on ILECs do no damage either because not many people want that service (so there is little money at stake) or, whatever the handicaps, the ILECs have invested enough to satisfy the demand. In either event, his contention would seem to be that, entirely apart from whatever regulatory obligations are imposed on them, (1) the ILECs have little incentive to invest except where competing facilities-based broadband services threaten other profitable substitute services such as second lines (par. 157 and 175)[45] and as a result unbundling requirements at "risk-adjusted" TELRIC rates[46] have no marginal impact on investment decisions [47] and/or (2) cost savings in the provision of existing services provided by increased investment in broadband are sufficient to justify it.

---

[45] Chandler, et al. make a similar assertion at p. 97. Professor Willig (at par. 175. See also, Chandler, et al. at 95) also claims that ILECs have been followers, rather than leaders in the provision of broadband facilities. Regardless of the validity of this claim, to the extent that multiple facilities-based providers are making risky investments, the issue of who came first seems irrelevant to the issue of whether to asymmetrically regulate one of them.

[46] We have offered what we regard as definitive reasons why the purportedly "risk-adjusted" rates of return typically incorporated in TELRIC prices fall far short of accounting for the uncertainties of the market in the face of rapid and commercially unpredictable technological progress, including the asymmetry of risk consequent on the fact that ILECs will demand sharing only of the successful, not the unsuccessful, investments. (see our opening declaration, par. 34) The notion that the uncertainties created by those factors—technological and competitive uncertainty and the inherent asymmetry of the sharing obligations—would have no discouraging effect on investment decisions defies credulity.

[47] Under this theory, absent the presence of the competing broadband facilities, ILECs would eschew investment to avoid "cannibalizing" second line profits.

36. The fundamental problem with the first assertion is that, under Professor Willig's assumption of the substitutability of broadband services for second lines, broadband *will erode whatever profits ILEC realize from second lines, regardless of whether those services are provided by ILECs or cable companies.* This means that the threat of loss of that profitable business can have no independent effect on the motive of ILECs to push ahead with broadband: the return that they make on those investments will depend on how successful they are in attracting *broadband* subscribers. That is, Professor Willig's explanation of why ILECs have invested in broadband? because "intermodal" alternatives such as cable modems threaten second line profits? is irrational *in the presence of intermodal broadband competition*.[48] Consider two scenarios. First, if as Professor Willig asserts, broadband services and second lines are close substitutes, profits from the latter will be eroded regardless of whether the ILEC or some other competitor provides the former service. As a result, the only incremental profits to be gained from the investment are those that could be earned from winning broadband customers: profits from second lines are eroded whether they invest or not), and these profits would be at risk from successful intermodal competitors and/or technological developments making current broadband technologies obsolete.

[48] The consideration he adduces would not be irrational in the *absence* of intermodal competition: that is to say, if the ILECs had a monopoly in the offer of broadband service, they would be deterred from making those investments by the fact that any additional profits they make from the offer of those services would be diminished by the cannibalization of their second-line business. In the presence of competition, that deterrent washes out.

37. If alternatively, as Hausman, et al. conclude, broadband and second lines are not close substitutes,[49] then firms subject to intermodal competition would again invest in broadband solely on the basis of its expected profitability. In either scenario, second-line profits are irrelevant—either because they will disappear anyhow, in the presence of intermodal competition, or because they would not be diverted to broadband services. And in either case, unbundling obligations and associated pricing rules will affect the profits that could be expected from investing in broadband and would dampen those incentives.

38. Relying on an early SBC Project Pronto briefing (par. 172 to 174), Professor Willig asserts that because cost savings in the provision of traditional services fully justifies the investment in broadband, ILECs incur minimal risk investing in it. We find it difficult to understand how anyone can express this kind of confidence, particularly in light of the drastic change during the last year or two in the financial condition and prospects of telecommunications firms generally, of which Professor Willig himself reminds us time and again, and in the presence of intermodal competition, in which the promised savings in cost is achieved in providing a particular service embodying one technology that, all experience in telecommunications tells us, is subject to great uncertainty about which of the present competing modes, or some as yet other technologies, will prevail. The entire recent history of telecommunications testifies to this kind of technological and competitive uncertainty.[50]

---

[49] Jerry A. Hausman, J. Gregory Sidak, and Hal J. Singer, "Cable Modems and DSL: Broadband Internet Access for Residential Customers," *American Economic Review*, Vol. 91, No. 2, 2001, pp. 302-307.

[50] Thus, even though SBC's expectations in 1999 might have been reasonable, changing conditions may well have changed the likelihood they would come to fruition. And because ILECs typically operate under incentive regulation for retail services and their wholesale services are thoroughly regulated, there is considerable risk that must be considered in investments in "traditional" services as well. Indeed, the change in fortunes in the

39. Professor Willig (at par. 185) says that eliminating unbundling obligations for broadband services would disadvantage CLECs because in that event they could not offer voice and data services in combination. To the contrary, the continuing availability to CLECs of unbundled loops for providing voice service offers them that opportunity. Indeed, that competitors will need to offer both voice and broadband services and are capable themselves of installing the necessary electronics for DSL recommends *elimination* of line-sharing, rather than its retention. As long as (voice) loops are available for leasing, neither ILECs nor CLECs would in these circumstances be prevented from offering voice and/or data services over the same loop. Indeed, a major component of the FCC's rationale for mandating line sharing was the existence of data-specializing CLECs (DLECs). We have long agreed with Professor Willig's position that carriers need to offer packages of services if they are to compete successfully. This means that independently of its deleterious effects on ILEC investment incentives, there seems to be a diminishing factual basis for retaining the line-sharing obligation. Even more fundamental, as the recent DC Circuit Opinion observed, the strength of cable modems demonstrates that access to ILECs' facilities are not essential for competition for broadband services.

40. Most troubling is Professor Willig's open-ended recommendation that unbundling be required as ILECs upgrade their broadband capabilities and his assertion that TELRIC prices for such new elements would be unobjectionable. We have already discussed the harmful effects of TELRIC prices on investment in new facilities at length in our opening

---

economy that led Professor Willig to conclude that CLECs had "overinvested" may well also contributed to SBC's scaling back of its Project Pronto.

declaration[51] and will not repeat that discussion here. Professor Willig asserts that "properly calculated" TELRIC rates would not inhibit investment. Of course, this statement is vapid, for two reasons. First, we have already explained at length what kinds of rates of return would be "proper" and see absolutely no indication of recognition of that order of magnitude in practice—certainly not in Professor Willig's testimony.[52] Even if the assertion were correct, the pertinent question would be whether such rates are likely to emerge from the regulatory process. Experience demonstrates that is highly doubtful. The simple fact is that, despite the thorough airing in regulatory process of the question of their adequacy to offset technological uncertainties in a now unregulated, competitive environment, TELRIC prices have typically incorporated rates of return and depreciation close to their regulated levels and clearly have not taken into account the undeniably increased financial risks consequent on the elimination of essentially cost-plus regulation, and the manifest effect of that uncertainty on the prices competitive firms need to charge to recover their investments.[53] Second, as we have likewise pointed out, the mere obligation to share the results of successful investments at regulated rates, while absorbing the costs of

[51] Pars. 28-34

[52] In its reply brief to the Supreme Court, the FCC described how, in principle, TELRIC can be sufficiently flexible to accommodate investment risks in a way that is approximately correct economically. Reply Brief for Petitioners Federal Communications Commission and the United States, *Verizon Communications, Inc. v. FCC,* July 2001.Our concern is whether this desired object can or will be attained in practice. The typically slight difference between rates of return incorporated in TELRIC prices and previously prescribed under rate-of-return regulations strongly suggest that it can or will not be.

[53] Chandler, et al, pp. 92-94, illustrate the difficulties encountered in obtaining "proper TELRIC" prices from the regulatory process. They downplay the ILECs' investment risks by first claiming that their lines are growing (even though they earlier noted the erosion in second-line growth) and then make the claim that new investment increases the value of ILECs existing plant, in spite of the fact that their client Worldcom routinely sponsors TELRIC models that imply that forward-looking investments would be one-half or less than embedded investments.

failures, in an environment of extreme technological uncertainty, must inevitably have a seriously discouraging effect on the undertaking of large investments.

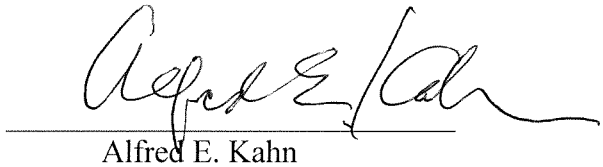
41. Finally, and perhaps most fundamental, the very idea of maintaining and expanding unbundling obligations at TELRIC rates for ILEC services, when these not only face stiff competition but have only one-half the market share of their major, unregulated rivals, who are subject to no such obligations cannot possibly be compatible with the spirit of the Telecommunications Act. The notion that slight increases in allowable rates of return could be sufficient to compensate ILECs for their conversion from regulated monopolists, entitled to that return on all but demonstrably imprudently incurred investment costs, to otherwise unregulated entities exposed to the active competition of rivals, with more than double their market share, and to the obligation to share with CLECs at TELRIC rates new facilities that offer a competitively superior option, while leaving them to bear the full costs of new facilities that turn out to be less attractive than those of competitors seems to us ludicrous on its face—and clearly incompatible with the unbiased competition contemplated by the Act.

42. The lessons of broadband extend far beyond broadband services themselves. Professor Willig (at par. 197) admonishes the Commission essentially to ignore what he calls "intermodal" competition with the ILECs, developing from such sources as cable and wireless, and concentrate instead on maintaining and indeed extending obligations that foster "intramodal" competition—specifically by CLECs using UNEs and UNE-Ps. In our opinion, he has the proper prescription exactly backwards. Everything we know about competition and the conditions of economic growth bespeaks the especial importance of

innovation and the dynamic competition that it promotes. That competition is, almost by definition, "intermodal"; and it is unquestionably impeded by mandatory sharing requirements imposed on incumbents operating in one single "mode"—especially at rates equated to the putatively perfectly competitive levels. The absurdity of imposing such obligations on incumbent telephone companies in the offer of broadband services, and not on cable or wireless, which have at least the double the market share of the former, is no greater than ignoring the similar convergence—again involving wireless and cable telephony—in the provision of local exchange services.[54] Under circumstances in which these last volumes are no longer growing, policies that measure their success by the number of competitors that are encouraged to get a piece of this action may be not only no longer necessary, but harmful and likely to be ultimately futile.

[54] See, for example, "Long Distance Carriers Grapple with Declining Market," *Telco Business Reports*, May 6, 2002, p. 3, which reports a projection by Standard & Poor's that long-distance voice and data revenue growth lag because of the economy and substitution of wireless and email.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 15, 2002.



Alfred E. Kahn

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 15, 2002.

Timothy J. Pardiff

APPENDIX 1

UNE-P Use and Facilities-Based Competition, in New York and Other States

Harold Ware

Contents

APPENDIX 1

UNE-P Use and Facilities-Based Competition, in New York and Other States

Harold Ware[1]

INTRODUCTION AND SUMMARY

1. This analysis demonstrates that, based on marketplace experience, greater use of UNE-Platforms is associated with lower levels and reduced growth of facilities-based competition. This analysis is organized in three parts.

2. Part I shows that, in New York, the rapid growth of UNE-P competition since 1999 has hindered facilities-based competition. In particular, marketplace evidence shows that facilities-based competition in New York was well established ***before*** AT&T and other incumbent long distance carriers began widely providing UNE-P service for residence customers in late 1999, and that facilities-based competition has grown more slowly since that time than before it. The evidence further shows that competitors that have obtained a critical mass of residence customers using UNE-Ps in New York have not migrated those customers to their own switches, while competitors with small volumes of residential UNE-Ps or none at all have accounted for the vast majority of residence facilities-based lines. This evidence disproves AT&T's claim that UNE-P is a necessary prerequisite to facilities-based competition.

3. Part II demonstrates that, based on comparisons across multiple states, there is an inverse relationship between the use of UNE-Ps and facilities-based competition. Put differently, states with greater use of UNE-Ps have ***less*** facilities-based competition.

4. Part III responds specifically to claims by AT&T, and its expert Dr. Willig, regarding the relationship between UNE-P and facilities-based competition. Their primary "market place evidence" for their claim that UNE-P leads to more facilities-based competition is a comparison of just two states—California and New York. We demonstrate first that AT&T's analysis is flawed conceptually because it: fails to assess how competition evolved over time in either state; does not control for demographic or marketplace differences between these states; and, focuses only on AT&T's own investment strategy. We also demonstrate that AT&T's claims are factually incorrect.

[1] This analysis was prepared for Verizon. Harold Ware is a Vice President at National Economic Research Associates (NERA). Dr. Ware has over 25 years of telecommunications policy analysis experience. He has recently analyzed competition for local, interexchange, broadband, wireless, and directory assistance services.

I. MARKET EXPERIENCE IN NEW YORK PROVES THAT THE WIDESPREAD USE OF UNE-PS RETARDS FACILITIES-BASED COMPETITION

5. The marketplace evidence from New York demonstrates that the widespread use of UNE-P has, if anything, impeded facilities-based competition.[2] The evidence, summarized below, shows that: (1) facilities-based competition was well established ***before*** AT&T and other long distance incumbents began widely providing UNE-P service to residence customers in late 1999; (2) since then, UNE-Ps grew rapidly, and the growth of facilities-based competition declined in New York; (3) the vast preponderance of UNE-Ps in New York are used to serve residence customers, but the firms that use UNE-Ps for this purpose generally do not also provide residence service using their own facilities; rather (4) firms that account for the vast majority of residence facilities-based competition use little or no UNE-Ps; and (5) firms that have obtained a critical mass of residential customers through UNE-Ps have not transferred their mass-market customers to their own switches.

A. Facilities-based competition was well established in New York before the rise of UNE-P in late 1999

6. AT&T began aggressively marketing UNE-P service to residence customers in New York in late 1999, around the time that the FCC approved Verizon's section 271 application in New York.[3] By that time, facilities-based competition was already well established in New York. For example, as of the end of 1999, Verizon competitors had deployed 55 local circuit switches in New York (see Table 1), and were serving a conservatively estimated 830,400 lines using those switches.[4] AT&T itself completed its acquisition of its local business service subsidiary, Teleport Communications Group (TCG), in July 1998, which gave it a total of 9 circuit switches in Verizon NY's service area.[5] The merged company added 6 more circuit switches by December 1999, bringing its total to 15. See Table 1.

---

[2] Unless otherwise noted, we use CLEC E911 listings to measure CLEC facilities-based lines throughout this analysis. This measure captures the lines that CLECs serve using at least their own switches. It is our understanding that E911 listings provide a conservative estimate of facilities-based lines. *See, e.g., UNE Fact Report 2002* at Appendix A.

[3] In December 1999, AT&T began to mass-market UNE-P based services in New York. *See* M. McDonald, "Rivals Swipe Verizon's Residential Users: 1 Million Switch, But Wall St. Shrugs," *Crain's New York Business*, Oct. 16, 2000, at 26. AT&T began test marketing UNE-P service in August 1999 via telemarketing to a cross-section of the company's 5 million New York long-distance subscribers. *See* J. May, *AT&T Quietly Tests Local Service in Bell Atlantic New York Territory*, The Star Ledger, Aug. 4, 1999.

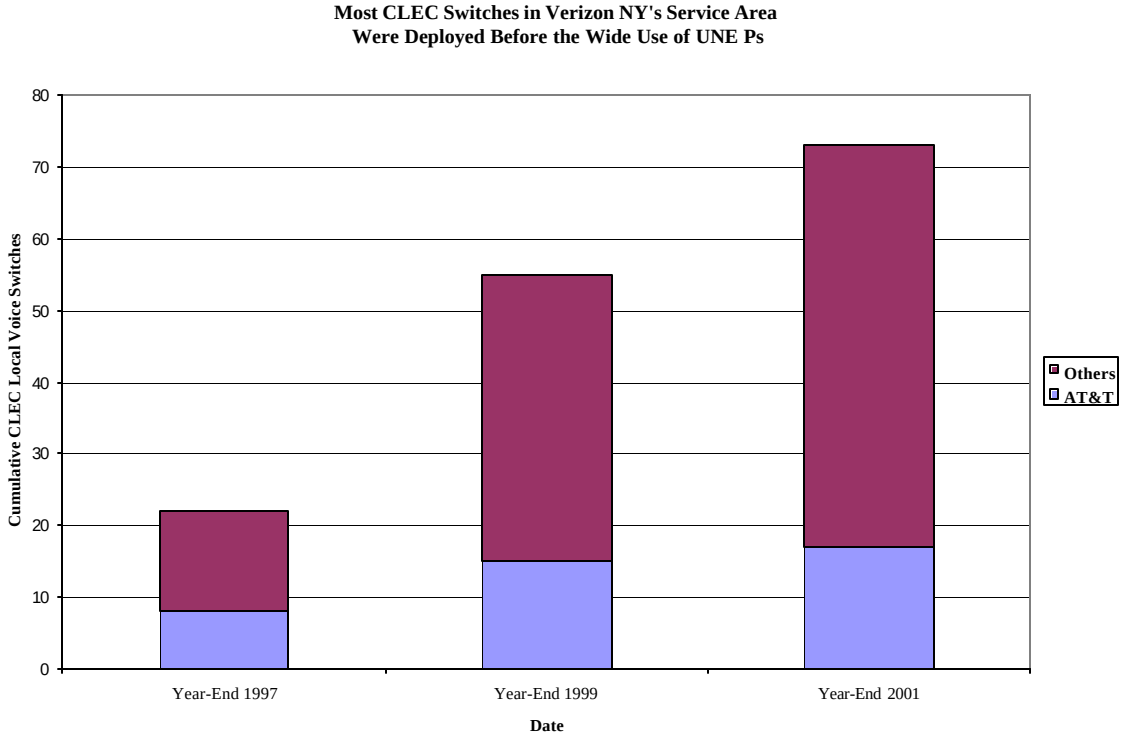
[4] Telcordia Technologies *Local Exchange Routing Guide ("LERG")*; September 1999 CLEC E911 listings obtained from Bell Atlantic-New York.

[5] AT&T News Release, *AT&T Completes TCG Merger,* July 23, 1998. Our count of local switches includes AT&T 4Es adapted to provide local service.

Table 1: Local Voice Switches in Verizon NY's Service Area: Cumulative Total Local Circuit Switches			
Date	**AT&T**	**Others**	**Total**
Year-End 1997	8	14	22
Year-End 1999	15	40	55
Year-End 2001	17	56	73

As shown in Figure 1, and as discussed below, there also was a decline in the growth of CLEC deployment of new switches after the rise of UNE-P in late 1999.

Figure 1



7. Facilities-based *residential* competition also began in New York prior to the widespread use of UNE-P. In July 1997, Cablevision Lightpath began offering Optimum Telephone to approximately 5,500 households in seven Long Island communities.[6] RCN has also been offering local service to both business and

[6] *See Cablevision Introduces Residential Telephone Service on Long Island*, Business Wire, Jul. 24, 1997. The seven communities were Bayville, Bellmore, Locust Valley, Oyster Bay, Seaford, Syosset and Uniondale. P. Joshi, *A Telephone Tug-of-War: It's UpStarts vs Baby Bells*, Newsday, Sept. 7, 1997, at F10.

residential customers in the New York metro area since August 1996.[7] By September 1999, Verizon NY competitors were serving at least 35,700 residence lines using their own switches based on facilities-based directory listings data.[8] Thus, facilities-based residential competition emerged before UNE-P was in widespread use. This evidence disproves AT&T's contention that UNE-P competition must precede facilities-based competition for residential customers.

B. Growth of facilities-based competition slowed in New York as UNE-P use proliferated.

8. Although facilities-based competition was widespread and growing rapidly before the rise of UNE-P in New York, the evidence demonstrates that the growth of facilities-based competition has slowed as UNE-Ps have proliferated.

9. *First*, the firms that were relying heavily on UNE-P by early 2001 have added fewer new switches than the firms who have not relied on UNE-P. For example, when we distinguish among the "high UNE-P" firms (i.e., firms with 1,000 or more UNE-Ps in New York as of March 2001) and "low UNE-P" firms (i.e., firms with less than 1,000 UNE-Ps in New York as of that same date), we find that high UNE-P firms added fewer new switches in New York in the two years between December 1999 and December 2001 than the "low UNE-P" firms.[9] During that same two-year period, the high UNE-P firms also reduced their switch deployment more substantially than the low UNE-P firms. Although the rate of switch deployment declined for both groups, the percentage decline was about 50 percent greater for the high UNE-P CLECs.[10] And, among the low UNE-P CLECs, those with less than 25 UNE-Ps—who were probably not offering UNE-P service commercially—added the vast majority of the switches in that same two-year period. These data demonstrate the negative relationship between UNE-Ps and facilities-based competition.

---

[7] *See C-TEC Corporation to Restructure into Three Public Companies*, PR Newswire, Feb. 13, 1997.

[8] See Docket No. 99-295, *I/M/O Application by New York Telephone Company (d/b/a Bell Atlantic - New York), Bell Atlantic Communications, Inc., NYNEX Long Distance Company, and Bell Atlantic Global Networks, Inc., for Authorization to Provide In-Region, InterLATA Services in New York*, Declaration of William E. Taylor, Attachment A at 2.

[9] We use March 2001 UNE-P data, as opposed to more recent data, to identify the level of UNE-P activity for firms so that we can test AT&T's hypothesis that UNE-P usage is a necessary precondition for facilities-based competition. Using March 2001 data allows us to sort the firms based on UNE-P usage after a little more than a year of competition following the approval of Verizon NY's 271 application.

[10] The low UNE-P CLECs' switch-deployment growth was 40 percent lower in the two years ending in December 2001 than it was in the preceding two years, while the high UNE-P CLECs' switch-deployment growth declined by 60 percent during that same period.

Table 2: High UNE-P Firms Have Added Fewer Switches in New York than Low UNE-P Firms				
	Switches Added by:			Total Switches Added
	Low UNE-P CLECs		High UNE-P CLECs	
	< 25 UNE-Ps	25 to 999 UNE-Ps	= 1,000 UNE-Ps	
Year-end 1997 to Year-end 1999	23	0	10	33
Year end 1999 to Year-end 2001	13	1	4	18

10. *Second*, after competitors began aggressively providing UNE-Ps to mass-market customers in New York, the overall rate of CLEC switch deployment fell. For example, despite the rapid proliferation of UNE-P between year-end 1999 and year-end 2001, competitors in New York deployed 45 percent fewer new switches during that two-year period than they deployed in the previous two years: 18 vs. 33. This evidence suggests that the ability to capture customers using UNE-P reduces the incentive of carriers to deploy their own switches to serve customers.

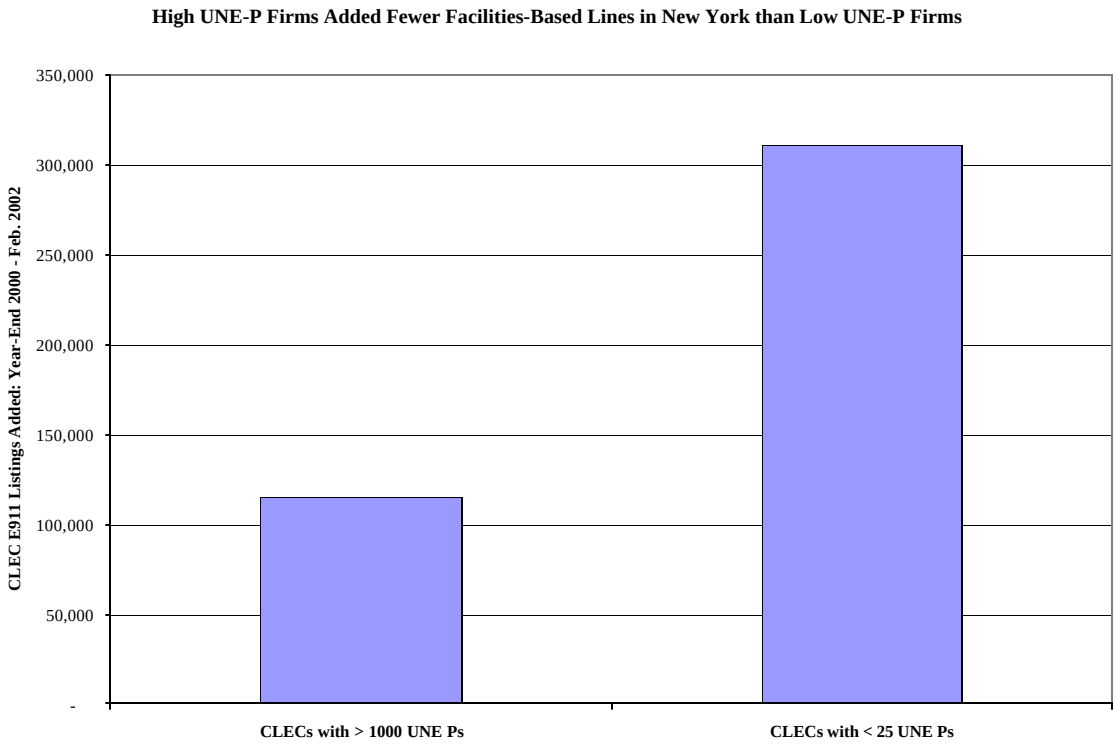
11. *Third*, in the period during which UNE-Ps proliferated in New York, the high UNE-P CLECs contributed much less to the subsequent growth of facilities-based competition than the low UNE-P CLECs.[11] As shown in Table 3 and Figure 2, between year-end 2000 and the end of February 2002,[12] the high UNE-P firms added 63 percent fewer facilities-based lines than the low UNE-P firms. Note also that, among the low UNE-P firms, those with less than 25 UNE-Ps accounted for all of the increase in facilities-based lines. Further, the growth rate of facilities-based lines of competitors with few or no UNE-Ps was roughly 4 times that of CLECs with heavy reliance on UNE-P s. Thus, greater use of UNE-Ps is clearly associated with less growth of facilities-based lines, both overall and among individual carriers. Moreover, as demonstrated below, the high UNE-P firms account for only a small fraction (less than 5 percent) of *residential* facilities-based lines.

[11] We used March 2001 data to categorize firms' UNE P activity rather than more recent data so that we could test AT&T's hypothesis that UNE-P deployment precedes facilities-based competition. Thus, we could assess how UNE-P use affected facilities-based competition roughly one year later, in February 2002. We used UNE-P data for March 2001, rather than February 2001, because Verizon had previously gathered company specific data on UNE-P usage for this date. Similarly, in some instances, we may compare data on the mix of competitive alternatives using slightly different dates for each type of entry. We do so because Verizon does not routinely compile detailed company-specific data on UNE-P use or E911 listings.

[12] We use New York E 911 data for February 2002 because company-specific data on E911 listings in New York were not available for year-end 2001.

Table 3: High UNE-P Firms Added Fewer Facilities-Based Lines in New York than Low UNE-P Firms			
	CLEC E911 listings as of YE 2000	CLEC E911 Listings added YE 2000 to 2-28-02	Percent Increase
High UNE-P Firms (≥ 1000 UNE-Ps)	**684,774**	**114,739**	**17%**
Low UNE-P Firms (< 1,000 UNE-Ps)	**473,333**	**311,350**	**66%**
Firms with 25 to 1000 UNE-Ps	0	n/a	n/a
Firms with < 25 UNE-Ps	473,333	311,350	66%

Figure 2



12. *Finally*, data from the New York Public Service Commission (NYPSC) show a decline in AT&T's plant investment between year-end 1999 (when AT&T began using UNE-P) and year-end 2000. According to the NYPSC, AT&T's telecommunications plant in service (less accumulated depreciation) in New York declined by about $168 million—from about $1.4 billion at Y/E 1999 to about $1.3 billion at year-end 2000. Thus, using the measure of investment that AT&T presents in Dr. Willig's declaration, at the same time AT&T was aggressively deploying UNE-

P it reduced its investment in local facilities in New York—i.e., it was not investing fast enough to offset the depreciation in its plant.

13. In sum, the evidence in New York shows that greater use of UNE-P is associated with lower levels and slower growth of facilities-based competition.

C. AT&T and other CLECs in New York have not used UNE-P as a stepping stone to provide facilities-based service; and, these CLECs' reliance on UNE-P has constrained facilities-based competition.

14. AT&T claims that UNE-P is a necessary prerequisite to facilities-based competition. According to AT&T, CLECs will transfer customers to their own switches only after they have obtained a critical mass of customers using UNE-Ps.[13] The marketplace evidence from New York disproves this. Specifically, the evidence shows that even CLECs that have obtained large volumes of customers through UNE-P in New York have not transferred those customers to their own switches; and, the CLECs that account for the vast majority of residence facilities-based competition have used little or no UNE-Ps to serve residence customers.

15. *First*, CLECs that have obtained large volumes of customers through UNE-P in New York have not transferred those customers to their own switches. According to public sources, AT&T and WorldCom alone had over 1 million mostly residential UNE-P customers in New York as of October 2000.[14] According to Verizon's data, as of March 2001, CLECs as a whole had obtained approximately 1.7 million UNE-Ps to serve residence customers in New York. As of that date, four companies – including AT&T and WorldCom – accounted for virtually all (over 1.5 million) of the total residential UNE-Ps. But, despite these very large UNE-P volumes, none of these four companies appears to have transferred these UNE-P customers to their own switches. Even though these four carriers already had deployed 26 switches in New York by year-end 2001, they collectively were serving only about 5,000 residence lines over those switches (as measured by E911 listings) in February 2002. This is less than 0.4 percent of their total residence lines (UNE-Ps + E911 listings). And, it is likely that most or all of the 5,000 lines have always been served over the CLECs' own switches – that is, they were not first UNE-P customers that were later migrated to the CLECs' switch.[15]

---

[13] *See*, for example, AT&T Comments at 6 and 8.

[14] M. McDonald, "Rivals Swipe Verizon's Residential Users: 1 Million Switch, But Wall St. Shrugs," *Crain's New York Business*, Oct. 16, 2000 at. 26.

[15] This is likely because the subsidiary that accounts for the vast majority of the residence E911 listings in this group has not had UNE-Ps.

16. *Second*, company-specific data also show that firms with the greatest use of UNE-Ps to serve residential customers tend to make less use of their own facilities to serve residential customers than firms that make little or no use of residential UNE-P. For example, in contrast to the four firms in New York with the most residential UNE-Ps as of December 2001, which serve only about 5,000 residence lines using their own switches as of February 2002, the four firms with the most facilities-based residential lines in New York (as measured by February 2002 residential E911 listings) have a total of almost 100,000 facilities-based residential lines and virtually no residential UNE-Ps (about 200 as of December 2001). This further demonstrates that UNE-P is not needed as a stepping stone to facilities-based competition.

17. *Third*, individual company-specific data also show that CLECs that have relied on UNE-Ps most to build their customer base, either have continued to use UNE-Ps exclusively or—like AT&T and WorldCom—have pursued a strategy of using their own switches exclusively or predominantly to serve business customers, while relying exclusively or predominantly on UNE-Ps to serve residential customers. The two scatter plots below demonstrate the dichotomy in entry methods chosen by firms. The first chart (Figure 3) depicts that: (1) the firms that were using little or no UNE-Ps by March 2001 use their own switches to serve as many as 17,000 to 37,000 residential lines using their own facilities—as shown by the points aligned on the vertical axis; while (2) the firms that were using substantial numbers of UNE Ps to serve residential customers still do so entirely or almost entirely through UNE-P—as shown by the points aligned on the horizontal axis.[16]

18. The second chart (Figure 4) demonstrates that CLECs serving business customers appear to have followed a similar pattern. That is: (1) the vast majority of CLECs that were serving large numbers of business lines through UNE-Ps by March 2001 serve few if any business lines through their own facilities—as indicated by the points aligned on the horizontal axis; while (2) the vast majority of CLECs that were serving relatively few (if any) business lines via UNE-Ps by March 2001 are each serving thousands of business lines (and many are serving tens of thousands) with their own facilities, as indicated by the points aligned on the vertical axis.[17]

[16] This chart includes CLECs that have fewer than 50,000 New York residence E911 listings + UNE-Ps. We omitted larger firms from this chart to avoid revealing proprietary company-specific data. Nevertheless, the basic pattern holds true for these firms as well—i.e., they have used UNE-Ps almost entirely to serve a combined total of 1.5 million residence lines, but serve only 5,000 residence lines with their own switches.

[17] This chart includes CLECs with fewer than 100,000 business UNE-Ps and facilities based lines. Again this was done to avoid revealing proprietary data.

Figure 3

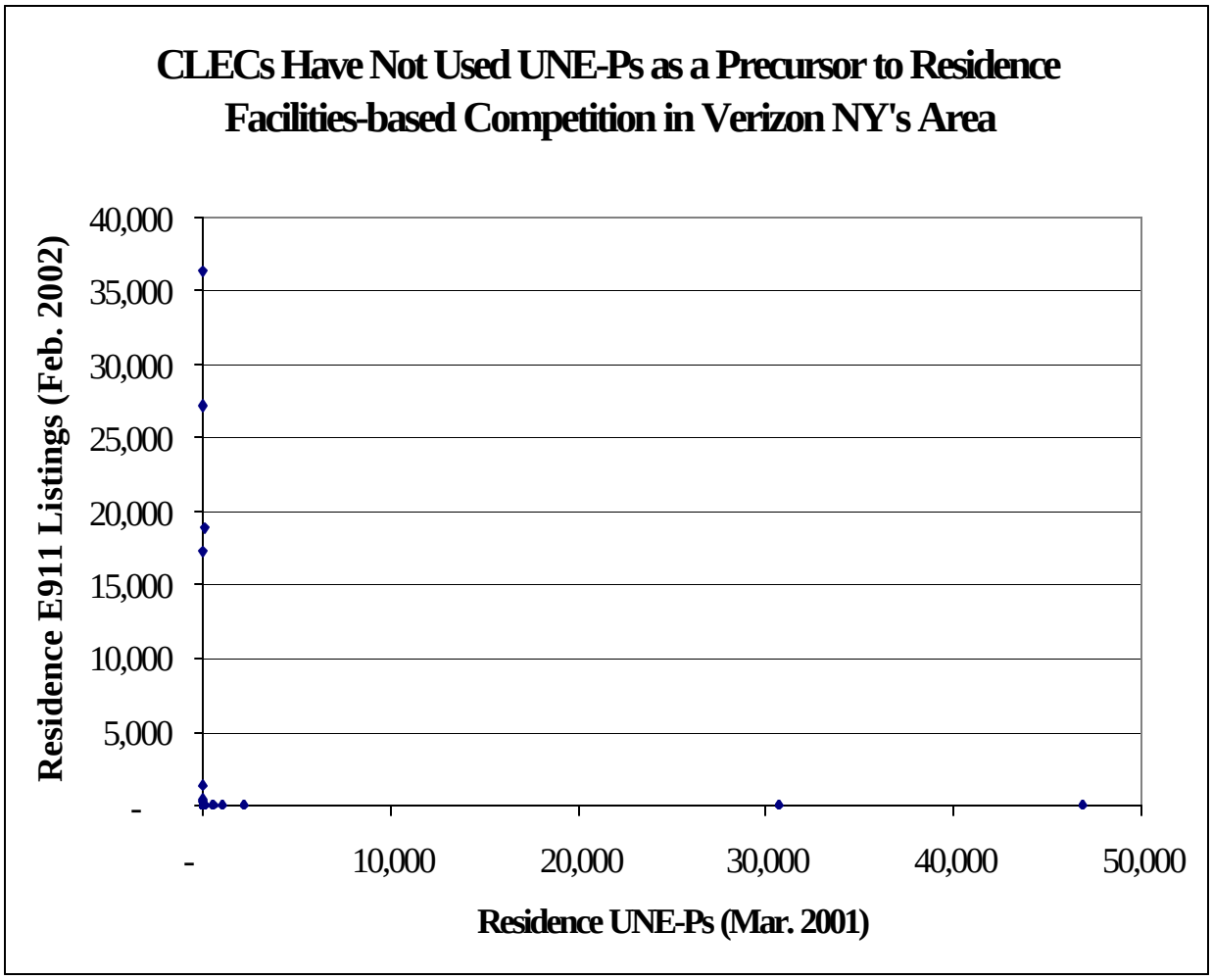
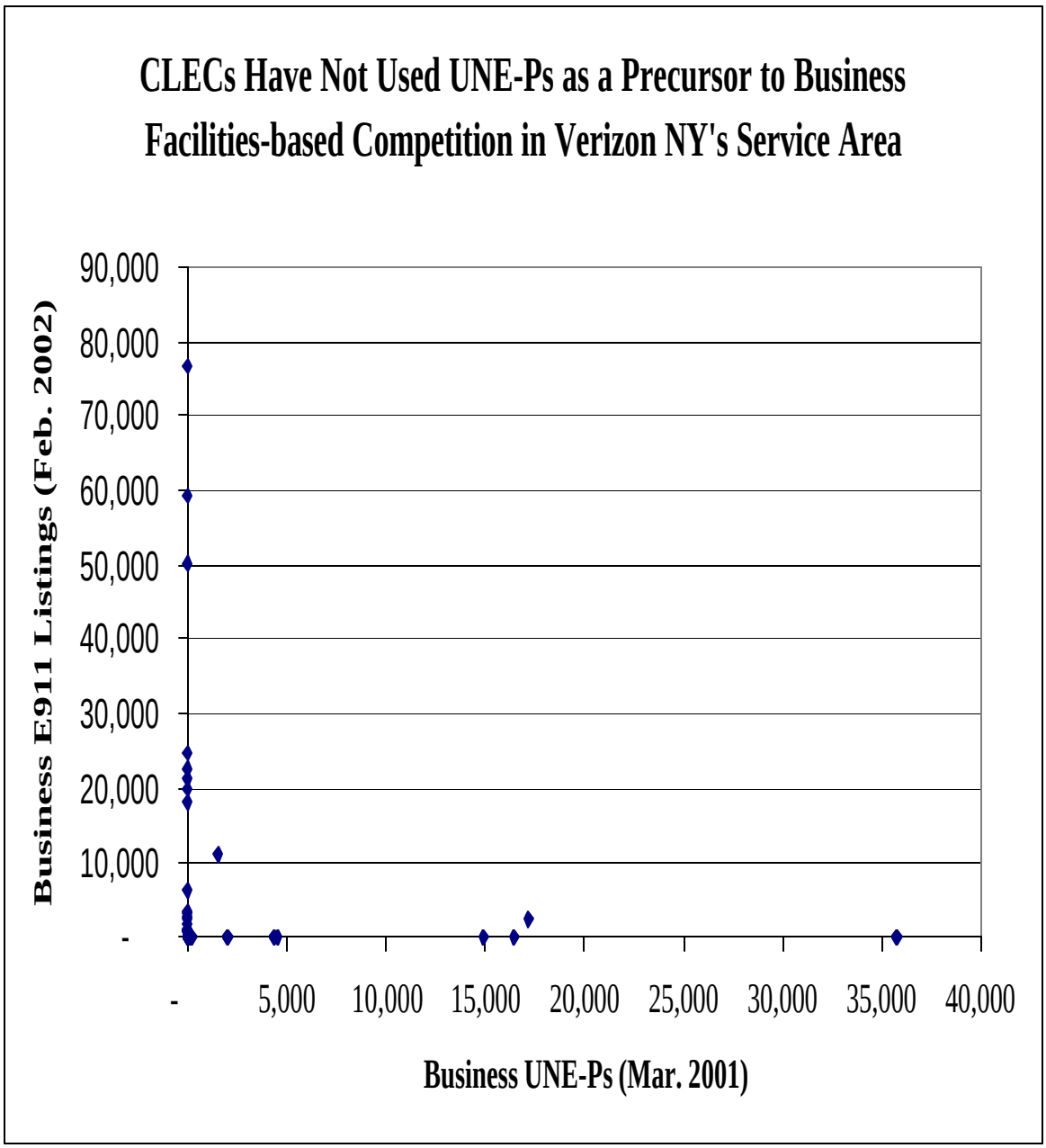

CLECs Have Not Used UNE-Ps as a Precursor to Residence Facilities-based Competition in Verizon NY's Area
Residence E911 Listings (Feb. 2002)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
-
10,000
20,000
30,000
40,000
50,000
Residence UNE-Ps (Mar. 2001)

Figure 4


CLECs Have Not Used UNE-Ps as a Precursor to Business Facilities-based Competition in Verizon NY's Service Area
Business E911 Listings (Feb. 2002)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
-
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
Business UNE-Ps (Mar. 2001)

19. *Fourth*, aggregate data (summarized in Table 4) confirm that New York CLECs have generally relied on UNE-Ps to serve residence customers, and have used their own facilities to serve business customers. For example, data from year-end 2001 and February 2002 show that roughly 6 percent of CLEC residence lines in New York are served through CLECs' own switches, while 92 percent are served through UNE-Ps (with the remaining 2 percent served via resale).[18] In contrast, about 75 percent of CLEC business lines in New York are served through CLECs' own switches, while only 10 percent are served through UNE-P (with the balance provided through resale). Coupled with the above data showing that the vast majority of the residence facilities based lines in New York are served by CLECs that were using no UNE Ps or almost no UNE Ps to serve residence customers, and with similar data for firms serving New York business customers, the summary data below confirm that UNE-P has not been a stepping stone to facilities-based competition in New York.

Table 4: The Mix of UNE-Ps and Facilities-Based Lines Between Residence And Business Customers Confirms That UNE-P Is Not A Stepping Stone To Facilities-Based Competition.

	Residence	Business	Total
Facilities-Based	106,983	1,477,210	1,584,193
UNE-P	1,590,905	184,156	1,775,062
Resale	39,423	271,715	311,138
Total CLEC	1,737,311	1,933,081	3,670,393
Percentages of Lines Within Customer Category			
Facilities-Based	6 %	76 %	
UNE-P	92 %	10 %	
Resale	2 %	15 %	

[18] We use resale and UNE-P data for year-end 2001. However, Verizon did not have residence and business E911 listings data available for that point in time; thus, we use February 2002 data in this calculation.

II. EXPERIENCE FROM STATES OTHER THAN NEW YORK FURTHER DEMONSTRATES THAT UNE-P RETARDS FACILITIES-BASED COMPETITION.

A. Company-specific data for other Verizon states confirm the inverse relationship between UNE-P use and facilities-based competition.

20. Company-specific data for Verizon states other than New York also show that high UNE-P firms tend to serve fewer lines with their own switches than low UNE-P firms.

21. A comparison of the pattern of residential competition in Verizon states in which competitors have captured at least one percent of all residence lines using either UNE-Ps, their own facilities, or both[19] shows that: (1) CLECs that provide residential service through UNE-Ps are providing little or no residential service through their own facilities; and (2) CLECs that are providing facilities-based residential service make very little or no use of residential UNE-Ps. In particular, firms with 1,000 or more residence UNE-Ps in those states serve about 249,000 residence lines using UNE-Ps, but have only 2,300 facilities-based residential lines; firms with less than 1,000 residence UNE-Ps in those states have a total of only about 4,500 UNE-Ps, but have about 718,000 facilities-based residential lines.[20] Thus, data for Verizon states other than New York confirm that there is a negative relationship between UNE-Ps and facilities-based competition for residence customers.

22. Similarly, greater use of UNE-Ps is associated with much less facilities-based competition for business customers. Here, looking at all of the former Bell Atlantic states,[21] we find that high UNE-P firms generally serve far fewer customers with their own facilities than low UNE-P firms. In particular, firms that use UNE-Ps to serve

---

[19] The Verizon states that meet this criterion are: MA, PA, RI, VA, MD, DC, DE, and NH. Together, these states contain 13.7 million Verizon residential lines that represent over 70% of all Verizon residential lines in the former Bell Atlantic territory, excluding New York. We confined the analysis of the mix of residence UNE-Ps and E911 listings to states in which these options represented at least 1 percent of the total residence lines because CLECs serve no more than 0.1% of residence lines in the other three former Bell Atlantic states using their own switches or UNE-Ps. As a result, including them would contribute nothing to our understanding of the interaction between these two types of competition. In addition, AT&T's CLEC and cable operations have been treated as separate entities for this analysis as a result of the imminent divestiture of AT&T's cable assets.

[20] The number of facilities-based residential lines for these states is about seven times the number in New York, even though the number of total residential lines (ILEC plus CLEC) in these states is only about 90 percent greater than in New York.

[21] We included all of the former Bell Atlantic states in this analysis because CLECs served at least 1% of total CLEC + Verizon business lines in every one of these states using either their own facilities, UNE-Ps, or both.

more than 5 percent of their business lines in those states have a total of only 342,000 facilities-based business lines, while firms that use UNE-Ps to serve fewer than 5 percent of their business lines in those states have a total of over 2.2 million facilities-based business lines.

B. Data from other states show that greater use of UNE-Ps is associated with less facilities-based competition.

23. Data provided when RBOCs filed successful 271 applications also suggest that UNE-P deters facilities-based competition. In particular, there has been less facilities-based competition in 271-approved states with relatively high UNE-P volumes than in 271-approved states with relatively low UNE-P volumes, based on data at the time these successful applications were filed. Conversely, in 271-approved states with low volumes of UNE-P, there tends to be relatively high volumes of facilities-based competition.

24. *First*, as shown in Table 5,[22] data on the mix of entry modes at the time successful 271 applications were filed show that states with more UNE-Ps had less facilities-based competition. For example, the average CLEC residence facilities-based line share (based on CLEC E911 listings) was about ***three times higher*** in states with relatively low volumes of residential UNE-P than in states with relatively high volumes of residential UNE-P.[23] Likewise, the average CLEC share of business lines for lines served over CLECs' own facilities was about 50 percent higher in states with low volumes of business UNE-P than in states with relatively high volumes of business UNE-P.

[22] Table 5 tabulates data from the states for which the RBOCs filed section 271 applications that were approved by year-end 2001. These states constitute one relevant sample by which to measure the effects of UNE-P because in each of these states regulators have certified that all steps required to open local markets have been taken.

We determined relatively "high UNE-P" and "low UNE-P" states for each category—residence, business and total—by calculating the percent of lines in each state in each category served by CLECs using UNE-Ps, sorting the states by this percent from lowest to highest UNE-P penetration and then separating the states into two roughly equal groups of 4 or 5 states. We picked the dividing line based on natural breaks in the data. For example, when sorted by total UNE-Ps (i.e. residence + business) four states had 0.5 percent or less UNE-Ps and five had 1.1 percent or more, in this case we categorized the first four as low UNE-P states and the next five states as high UNE-P states. For the residence category the break was at 0.5 percent, and for business it was at 1.1 percent.

[23] CLEC facilities-based lines share = CLEC residence E911 listings divided by total residence lines in the relevant service area.

Table 5: 271-Approved States with Relatively High UNE-P Volumes Have Fewer Facilities-Based Lines(at time of 271 Application)[24]		
	CLEC facilities-based lines/ Total Lines	UNE-Ps/Total Lines
Residence		
Average for High UNE-P States[25]	1.0%	1.9%
Average for Low UNE-P States[26]	2.8%	0.1%
Business		
Average for High UNE-P States[27]	10.1%	3.0%
Average for Low UNE-P States[28]	15.4%	0.5%
Total (Residence and Business)		
Average for High UNE-P States[29]	4.8%	1.9%
Average for Low UNE-P States[30]	7.5%	0.5%

25. *Second*, using more recent data from the UNE Fact Report on the number of CLEC self-supplied loops in the above sample of states produces similar results. The states with more UNE-Ps at the time successful 271 applications were filed had less facilities-based competition as measured using CLEC self-supplied loops in service as of year-end 2001. Table 6 summarizes these results.

[24] Data obtained from filings submitted by the RBOCs for 271 applications: New York (Sept. 1999); Texas (Apr. 2000); Oklahoma (Oct. 2000); Kansas (Oct. 2000); Massachusetts (Jan. 2001); Pennsylvania (Apr. 2001); Arkansas (Aug. 2001); and Rhode Island (Sept. 2001).

[25] Includes the following states: New York, Texas, Pennsylvania, and Arkansas.

[26] Includes the following states: Kansas, Oklahoma, Massachusetts, Missouri, and Rhode Island.

[27] Includes the following states: Kansas, Texas, Oklahoma, Missouri, and Rhode Island.

[28] Includes the following states: New York, Arkansas, Massachusetts, and Pennsylvania.

[29] Includes the following states: New York, Texas, Kansas, Pennsylvania, and Missouri.

[30] Includes the following states: Oklahoma, Massachusetts, Arkansas, and Rhode Island.

Table 6: 271-Approved States with Relatively High UNE-Ps Have Relatively Fewer CLEC Self-Supplied Loops in Service (as of Year-End 2001)[31]	
	CLEC Loops / Total Lines
Average for High UNE-P States[32]	5.7%
Average for Low UNE-P States[33]	8.2%

26. The above analysis also is confirmed by a comparison of states that AT&T claims have high UNE-P entry or favorable terms of UNE-P entry (NY, TX, GA, and MI) with states that AT&T claims have relatively unfavorable terms of UNE-P entry (CA, MA and NJ).[34] The data show that in states AT&T claims have favorable conditions for UNE-P entry, there is an average of 20 percent fewer CLEC self-supplied loops than in states AT&T claims have unfavorable conditions for UNE-P entry.[35]

27. According to AT&T, Massachusetts is among the states with unfavorable terms for UNE-P entry; thus, if AT&T's hypothesis regarding UNE-Ps and facilities-based competition were correct, we would expect to see relatively less facilities-based competition in Massachusetts than in other supposedly favorable UNE-P states. However, in proportion to the number of lines served by Verizon, Massachusetts has greater facilities-based competition—i.e., greater facilities-based lines, ported numbers, unbundled loops, and collocation sites—than New York.[36]

---

[31] CLEC self-provide loops from *UNE Fact Report*, at IV-7; *ARMIS 43-01*,Dec. 2001.

Total lines for OK, KS, and TX estimated by adding RBOC lines reported in ARMIS for year-end 2001 to estimated year-end 2001 CLEC lines for each state. CLEC lines for year-end 2001 have been estimated from year-end 2000 and June 2001 FCC data on CLEC lines for each state. Total lines and for MA, RI, NY, and PA are year-end 2001 data provided by Verizon. Total lines for AR and MO are from August 2001 271-application data. *See:* FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of December 31, 2000*, May 2001, at Table 6; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of June 30, 2001*, Feb. 2002, at Table 6; AR, and MO 271 application data provided by SBC.

[32] Includes New York, Texas, Kansas, Pennsylvania, and Missouri.

[33] Includes Oklahoma, Massachusetts, Arkansas, and Rhode Island.

[34] See AT&T Comments at vi and 12.

[35] We are using CLEC supplied loops for this analysis because we don't have access to E911 data for the non-Verizon states.

[36] On a per 1,000 total access line (CLEC + ILEC) basis, Massachusetts has 49% more E911 listings, 20% more ported numbers, 1% more unbundled loops, and over 100.0% more facilities-based collocation arrangements than New York.

28. Massachusetts also has more facilities-based competition than Georgia, a state that Dr. Willig claims to be comparable with Massachusetts because the two states: "have roughly comparable populations sizes, and each has a major business center with a high technology corridor (Atlanta and Boston)."[37] The data show that Massachusetts has roughly 44 percent more CLEC self-supplied loops than Georgia in absolute terms. And in proportion to the number of access lines in these two states, Massachusetts has about 18 percent more CLEC self-supplied loops than Georgia.[38]

C. Verizon states with relatively high UNE-P also have relatively less facilities-based competition from cable companies.

29. Marketplace experience with the development of cable telephony also shows a negative relationship between UNE-Ps and facilities-based competition. Verizon states with relatively high volumes of residential UNE-P have relatively low volumes of residential cable telephony (as well as less overall facilities-based competition for residence customers).

30. As shown in Table 7 and Figure 5, New York has the greatest level of residential UNE-P penetration in the Verizon states; Pennsylvania has the second highest residential UNE-P penetration; and residential UNE-P penetration in other Verizon states in which CLECs use UNE-Ps or their own facilities to serve at least 1% of residential lines[39]—i.e., RI, MA, MD, NH, DC, DE, VA—is 0.2 percent or less. In New York—which has proportionately at least four times more residential UNE-P than any other Verizon state—cable telephony penetration is only about one-quarter the level in Pennsylvania, and only about one-fifth the level in the other Verizon states considered for this analysis. Moreover, New York also has lower penetration of other types of facilities-based residential competition than the other Verizon states considered here.

---

[37] See AT&T Comments at 67 and Willig Declaration at para 109.

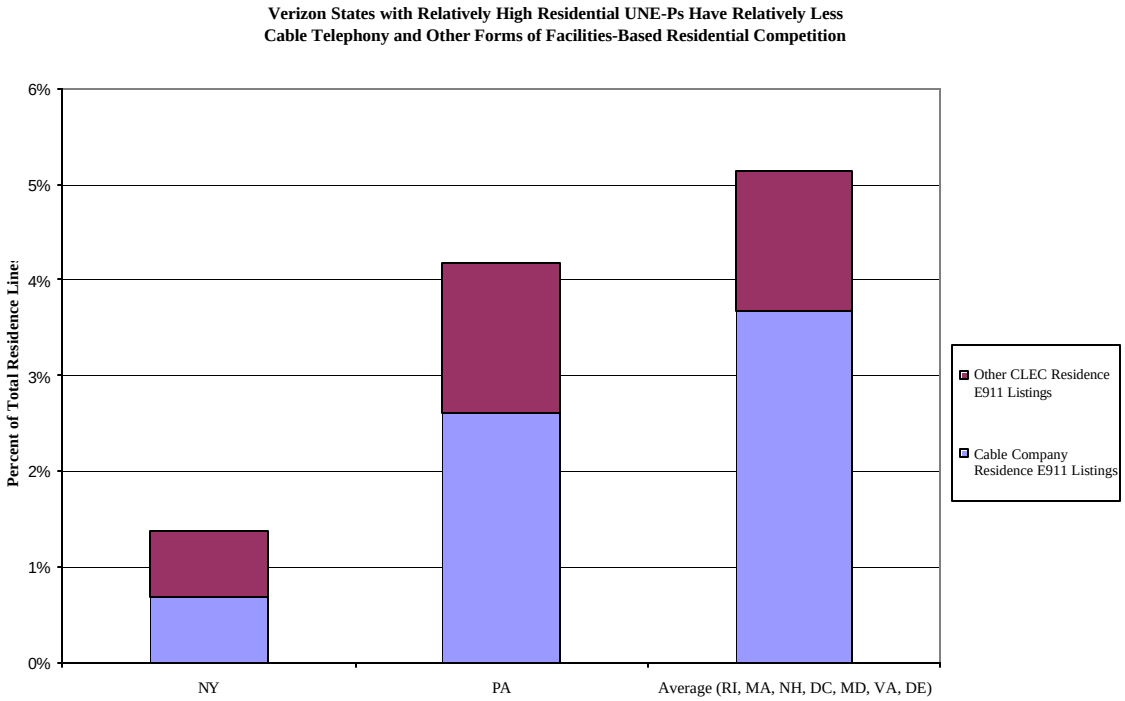
[38] Total access lines for Georgia estimated by adding RBOC lines reported in ARMIS for year-end 2001 to estimated year-end 2001 CLEC lines for each state. CLEC lines for year-end 2001 have been estimated from year-end 2000 and June 2001 FCC data on CLEC lines for Georgia. Total access lines for Verizon MA's service area provided by Verizon.

Sources: *UNE Fact Report*, at IV-7; *ARMIS 43-01*,Dec. 2001; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of December 31, 2000*, May 2001, at Table 6; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of June 30, 2001*, Feb. 2002, at Table 6.

[39] We omitted three states that do not meet that criterion, Delaware, Vermont, and New Jersey, as CLECs serve no more than 0.1% of residence lines using their own switches or through UNE-Ps.

Table 7: States with Relatively High UNE-P Have Relatively Less Cable Telephony and Other Forms of Facilities-Based Residential Competition				
	CLEC Facilities-based Residential Lines as a Percentage of Total Residential Lines			Residence UNE-Ps as a Percentage of Total Residential Lines
	Cable Company	Other CLECs	All CLECs[40]	
Average (RI, MA, NH, DC, MD, VA, DE)	3.7%	1.5%	5.2%	0.1%
PA	2.6%	1.6%	4.2%	4.9%
NY	0.7%	0.7%	1.4%	22.3%

Figure 5



31. If AT&T did not have enormous volumes of UNE-Ps in New York, it would likely have had greater incentives to reach agreements with cable TV firms, or act more aggressively on agreements it already has with such firms to offer cable TV customers telephone services under the AT&T brand. AT&T also would have had a

[40] Total may not be the same as the sum of "Cable Company" and "Other CLECs" due to rounding.

greater incentive to pursue the use of UNE loops with its own switches. In either case, the likely result would have been more facilities-based competition in New York.

32. The marketplace experience summarized above also is inconsistent with AT&T's claim that cable telephony offers only limited competition. Even in New York, cable TV operators account for about 50 percent of competitors' facilities-based residence lines. And, in other Verizon states with lower UNE-P volumes, cable telephony's share of facilities-based lines is about twice as large as the share accounted for by other CLECs. Indeed, 11 of the 13 CLEC state operations with 10,000 or more facilities-based residence lines (based on residential E911 listings) in Verizon areas outside of New York state are owned by cable MSOs. Finally, AT&T itself has made massive investments in cable telephony, which it says are paying off.[41]

III. AT&T'S CLAIMS ABOUT NEW YORK AND CALIFORNIA ARE MISLEADING.

33. AT&T's principal "marketplace evidence" regarding the alleged link between UNE-P and facilities-based competition consists of comparisons of its own deployment of local facilities in two states, New York and California. According to AT&T, it has deployed more local facilities in New York—which has substantial UNE-P competition for residence customers—than in California, where AT&T claims "residential [UNE-P] competition has been unavailable" because of "preclusively high UNE rates and inadequate operational support." As demonstrated below, AT&T's two-state, one-company comparison is conceptually flawed, and publicly available data for the two states do not support AT&T's allegations.

34. *First*, data for AT&T alone, and for New York and California alone, are not sufficient to support AT&T's claims. AT&T's claim that it has "deployed more switches (both in absolute terms and on a per-line basis)…" in New York than in California could be factually correct; however, it is irrelevant because other competitors may have made different investment decisions than AT&T, including targeting different geographical regions than those on which AT&T has focused. Thus, even if AT&T itself "deployed more switches in NY than in CA," that would merely reflect its own business plan rather than the relative levels of competition in the two states. In

[41] *See* Jessica Hall, "Comcast endorsed telephony to win AT&T Broadband," *Reuters*, Dec. 21, 2001:

> AT&T, which has one million cable telephony subscribers, … expects the cable telephony service to reach break-even in the first quarter of 2002.
>
> The company said about 15 percent of customers in eligible areas buy the service, with penetration of more than 20 percent in many communities. AT&T could expand the service over Comcast's network "with very low incremental cost," Bill Schleyer, president and chief executive of AT&T Broadband, told analysts."

addition, the simplistic two-state approach used by AT&T could produce misleading results because demographic and regulatory differences between New York and California, which have nothing to do with UNE-P availability or pricing, may account for differences in facilities-based competition in those two states.

35. *Second*, as demonstrated in Table 8, CLECs as a whole have deployed more switches in California than in New York.[42] The data also show that, after UNE-Ps were being deployed in large numbers in New York, (i.e., after 1999), switch deployment was slower in New York than in California. And, the reduction in switch growth after 1999 compared to the prior two years was *much* greater in New York than in California.

Table 8: There Was Lower Switch Growth in New York than in California Despite The Rise of UNE-P Only In New York[43]

	California		New York	
	Switches	Growth	Switches	Growth
Year-End 1997	54		22	
Year-End 1999	100	85%	55	150%
Year-End 2001	139	39%	73	33%

36. *Third*, CLECs serve ***more*** residential customers using their own switches in California than they do in New York. This is all the more significant in light of differences between the two states that have nothing to do with UNEs and that suggest that we would expect to see lower CLEC activity in California than in New York. For example, California has relatively small local calling areas compared to New York,[44] which makes it likely that competitors have a greater incentive to enter

[42] When we adjust for differences in the number of lines in the two states we find that the number of CLEC switches in RBOC areas was larger in California than in New York. California had about 7.2 CLEC switches per 1,000,000 access lines, while New York had only about 5.5 CLEC switches per 1,000,000 access lines.

Total lines for New York provided by Verizon. Total lines for Pacific Bell's region in California estimated by adding Pacific Bell's lines reported in ARMIS for year-end 2001 to estimated year-end 2001 CLEC lines for the state. California CLEC lines for year-end 2001 have been estimated from year-end 2000 and June 2001 FCC data on California CLEC lines.

Sources: *UNE Fact Report*, at IV-7; *ARMIS 43-01*,Dec. 2001; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of December 31, 2000*, May 2001, at Table 6; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of June 30, 2001*, Feb. 2002, at Table 6.

[43] *See Telcordia LERG.*

[44] This is evidenced by the tremendous amount of intraLATA toll in California compared to New York. In 2000, California had 4.90 billion intraLATA toll calls—or almost 1/3 of the 15.53 billion intraLATA calls in the continental US. By comparison, New York had only 0.36 billion intraLA TA toll calls. Federal Communications Commission, *Statistics of Communications Common Carriers 2000/2001*

(continued...)

the local market in New York because more calls (and more revenues) are local. Moreover, the concentration of customers in New York cities compared to the dispersed pattern of California customers[45] implies that competitors would tend to deploy more facilities in New York.

37. *Fourth*, a comparison of competition in California and Texas further demonstrates the flaws in AT&T's New York/California comparison. Texas is similar to California in terms of "… factors such as LATAs, BOC ownership of the ILEC, and geography."[46] As demonstrated in Table 9, California has substantially more self-supplied CLEC loops than Texas, despite much lower UNE-P volumes.

Table 9: California has More Facilities-Based Competition than Texas (as measured by CLEC self-supplied loops).[47]

State	CLEC-Self-Supplied Loops	Estimated Total Lines	CLEC-Self-Supplied loops/ Total Lines
Texas	500,000	10,342,693	4.8%
California	1,604,000	19,413,148	8.3%

(...continued)

Edition, Sept. 15, 2001, at 24. Further, average retail [local] revenues are lower in California than in New York. Average local revenues per month are only about $28 in California vs. about $42 per month in New York. (*See* Billy Jack Gregg, Consumer Advocate Division, Public Service Commission of West Virginia, *A Survey of Unbundled Network Element Prices In The United States*, Jan. 1, 2002, at Table 2.) In contrast, California competitors have a greater incentive and ability to compete for intraLATA calls.

[45] About 26 percent of California residents live in its ten largest cities and 11 percent of its residents live in its largest city, Los Angeles. In contrast, 49 percent of New Yorkers live in its ten largest cities, and 42 percent of its residents live in New York City. *See* U.S. Census Bureau, *Census 2000 Redistricting Data*, Population, Housing Units, Area, and Density Tables (State by Place), http://www.census.gov/clo/www/redistricting.html.

[46] According to a paper regarding the effect of BOC entry into interLATA and intraLATA service, "… California served as a control for Texas. The control states were chosen because of similarities in factors such as LATAs, BOC ownership of the ILEC, and geography." *See* Jerry A. Hausman, G. K. Leonard, and J.G. Sidak, American Enterprise Institute for Public Policy Research, *The Consumer-Welfare Benefits from Bell Company Entry into Long-Distance Telecommunications: Empirical Evidence from New York and Texas*, Jan. 9, 2002, at 5.

[47] Total lines for CA estimated by adding RBOC lines reported in ARMIS for year-end 2001 to estimated year-end 2001 CLEC lines for each state. CLEC lines for year-end 2001 have been estimated from year-end 2000 and June 2001 FCC data on CLEC lines for each state.

Sources: *UNE Fact Report*, at IV-7; *ARMIS 43-01*,Dec. 2001; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of December 31, 2000*, May 2001, at Table 6; FCC Common Carrier Bureau Industry Analysis Division, *Local Telephone Competition: Status As Of June 30, 2001*, Feb. 2002, at Table 6.

APPENDIX 2

An Appraisal of Professor Willig's Econometric Analysis, Exhibits 2 and 3

Timothy J. Tardiff

1. On the basis of a regression analysis that included ILEC investment per capita from 1996 to 2000, UNE-P prices for the highest density zones, and other variables intended to take "into account the effect of other determinants of the level of ILEC investment" (par. 112), Professor Willig concluded that:

> environments conducive to CLEC activity…stimulate ILEC investment, and that state environments that are discouraging to CLEC activity result in suppressed levels of ILEC investment….In short, there is no basis for the ILECs' assertion that UNE-P and UNEs discourage investment by ILECs or CLECs. Indications are that…effective UNE-P competition leads to greater investment by ILECs as well as by CLECs. (par. 121-122)

Professor Willig's statistical correlations cannot support his conclusion that low UNE-P prices encourage greater ILEC investment. In addition, at least one explanatory variable he has chosen does not align with his theoretical arguments—as we will proceed to explain—and others are inadequately described and/or impossible to validate independently.[1]

2. The validity of his conclusion depends on whether the statistical correlations he has measured—in particular, that ILEC investments per capita tend to be higher in states that have lower UNE-P[2] rates—justify the inference that if a regulator in a particular state lowered UNE-P rates, ILECs in that state would invest more: does *correlation*

---

[1] In particular, the model uses an average revenue per residential line variable (see paragraph 12) and UNE rates for Zone 1 relying on data available to and calculations performed by AT&T, neither of which could be obtained or replicated on the basis of the description provided by Professor Willig and/or the very restricted access provided by AT&T.

[2] Professor Willig (at par. 119) observes that significance of this relationship in his reduced form regression falls below conventional levels of statistical significance.

across states translate into a *causal* relation that applies to ILECs within a state? The requirements for such a translation are heavy. In my judgment, Professor Willig's correlations do not meet this burden.

3. Perhaps the largest conceptual problem with the analysis is that it attempts to explain total investment per capita over a four-year period (from 1996 to 2000[3]) by looking at explanatory variables observed at the end of the period. For example, according to Professor Willig's model, the decision of a CLEC to enter the market in 1997 is explained by UNE-P prices three years later. The flaw is not merely that the relative levels of those explanatory values state-by-state may have differed over the entire periods from the end-of-period variables that he used. More fundamentally, (1) there is no way in which the total number of CLECS in 2000 could have affected the investments by the ILECS in the preceding years, and even more fundamentally, (2) it is difficult to understand how ILEC investments for the first three years of the period could have been affected by CLECs deploying UNEs, as Professor Willig hypothesizes[4], *in view of the fact that the CLECs made very little use of UNEs at all, let alone UNE-Ps, before 2000.*[5]

4. Even if the UNE-P prices were properly aligned temporally with the reactions they purportedly induced, the step from statistical correlation to causation requires either

---

[3] Professor Willig's investment measure is unconventional at best. He compares an ILEC's net plant (total book investment less accumulated depreciation) at the end of 2000 to net plant in 1996, a measure that, by definition, excludes from total investment during that period equivalent to regulatory depreciation—investment presumably likewise requiring explanation in terms of his proffered independent variables.

[4] For example, AT&T did not begin deploying UNE-P in significant numbers until late 1999. See Appendix 1 to this declaration and "UNE Platforms and Investment," attached to Verizon's Reply Comments.

[5] According to the FCC, by the end of 1999 CLECs were using approximately 1.5 million UNE loops (with under 0.5 million of these being UNE-P (out of a total of about 190 million lines). By the end of 2000, total UNE loops had more than tripled to about 5.3 million, with 2.8 million UNE-Ps. By mid-2001, there were 7.9 million UNE loops, with 4.8 million of these UNE-Ps.

that all other determinants of ILEC investment have been taken into account or that the omitted determinants be statistically uncorrelated with those that are included. We illustrate this proposition with the following example. Suppose annual investment per capita were $200 in one state and $150 in another state before 1996 (the difference reflecting, for example, a difference in population growth rates). Suppose both the costs and the prices of UNE-Ps were the same in both states. Suppose, however, the regulator in the first state then reduced the UNE-P price in 2000, and the reduction had the effect of discouraging investment by the ILEC, reducing it to 175 per capita in that year. Professor Willig's calculations would nevertheless show a higher investment in the first state (200+200+200+175 = 775) than in the second (4 x 150 = 600), associated with a lower measured UNE-P price, leaving the incorrect inference that lower UNE-P prices are associated with (and putatively cause) larger ILEC investment.

5. The example is of more than academic interest. For example, the UNE Platforms and Investment paper (p. 11-12) describes how ILECs with high levels of investment in 2000 had similarly high levels in earlier years (presumably before UNE-P availability at favorable prices had come into play) and ILECs with low levels in preceding years tended to remain at those low levels thereafter. To the extent that UNE-P prices were coincidently correlated with the underlying investment trends, what at first glance one might interpret as low UNE-P prices encouraging ILEC investment would on more careful inspection prove to be nothing more than a spurious correlation.

6. Professor Willig's results and his interpretations of some of the findings themselves illustrate how tricky inferring causation from statistical association can be. One of his

statistically most significant determinants is his deregulation variable (Exhibit 3). In discussing this outcome (Exhibit 2, par. 25), Professor Willig correctly observes that since Nebraska is the only state classified as deregulated, the highly significant negative relationship he finds may well indicate that unmeasured factors specific to Nebraska, not deregulation itself, are what lead to relatively less ILEC investment in that state. The broader implication, of course, is if the model does not include proper controls for factors that cause investments to vary among states (and which are likely to be correlated with UNE-P prices and the other variables in the regression), the magnitude and significance of particular coefficients are suspect.

7. In a few places, Professor Willig suggests that economic theory tells us whether a particular explanatory variable should have a positive or negative relationship with the dependent variable in question—for example, that the entry of CLECs should be positively associated with average retail revenues per subscriber (Exhibit 2, par. 6). If such expectations are met, he views the outcome as a strong indication that the regression properly accounts for the relevant determinants (Exhibit 2, par. 24). Conversely, an explanatory variable with the theoretically incorrect sign strongly suggests that some important determinant or determinants had not been included, and that the variable with the "incorrect" sign is picking up the effects of the omitted ones.[6] There are two examples of such likely omissions, indicated by theoretically "incorrect"—or unanticipated—signs. The first is Professor Willig's plausible expectation of a positive relationship between average retail revenues per subscriber

[6] Professor Willig's reluctance to accept the proposition, implied by his negative coefficient, that deregulation discourages investment and his suggestion, therefore, that other Nebraska-specific factors might be explaining the correlation is an example of how an incorrect sign can serve as a diagnostic for left-out determinants. Such excluded variables can bias not only the explanatory variable that pointed to their exclusion, but all other variables as well.

and CLEC entry. Contrary to that expectation, however, his regression produces a *negative* coefficient (Exhibit 3, Column 3). Second, on the basis of theoretical reasoning (Exhibit 2 at pars. 5 and 24), Professor Willig includes an "ILEC Cost of Investment" variable, intended to capture differences in "the cost of raising financial capital…and the prices of the tangible equipment and services that will constitute the physical capital that is needed to be installed in the geographic area in question." According to his reasoning, ILECs would be expected to invest more when investment costs are lower. Professor Willig reasons (Exhibit 2, par. 24) that because his model produces the negative relationship he expected between average TELRIC average costs (his label for the "ILEC cost of investment" variable) and ILEC investment--it "is consistent with the underlying economics, and it provides reassurance that TELRIC costs have been successfully controlled for."

8. There are several dubious aspects of this reasoning:

   - His measure of TELRIC costs does not in fact measure what he used it to measure—cost differences attributable to the variations among states in *input prices*. The costs he uses here are the costs produced by the FCC's model, which are themselves based on *nationwide* input prices (equipment costs, labor rates, cost of capital). His model therefore produces apparent cost differences among the states that actually reflect only differences in the *quantities of inputs* needed to offer service—to take the most obvious and important example, the widely varying average length of loops, depending on population density—and not the differences in the prices of those inputs. While this is literally the case, it is not altogether implausible to view this effect in the same way as a difference in input

prices: the fact that one company needs 20 percent more wire in its phone lines than the nationwide average may be viewed in the same way as its requiring the same amount of wire but paying a 20 percent higher price for it.

- In either event, however, Professor Willig's "expectations" about the relationship between those differing "costs" and ILEC investment, a dollar total, must contain an undisclosed but essential assumption about the elasticity of demand—specifically, that it is greater than unity: only in that event would lower "costs of investment" (purporting, incorrectly, to measure differences in input prices) induce disproportionately greater increases in the dollar volume or amount of investment.
- But if his measure of investment cost is essentially the cost of basic service produced by the FCC's universal service model, that implicit elasticity assumption is highly dubious.[7]

9. Instead, the widely recognized inelasticity of demand for basic dial tone service clearly justifies the expectation that ILEC investment levels would be *greater* in states with higher FCC TELRIC costs, reflecting the need for relatively greater quantities of inputs to operate in those states. Interpreted in this light, the negative relationship that Professor Willig finds between his TELRIC cost variable and ILEC investment is counterintuitive, again suggesting that important determinants have not been properly controlled and therefore casting additional doubt on the model, in general, and the results for the UNE-P price variable in particular. That is, because of

[7] If the ILECs were unregulated monopolists, they would indeed be expected to price basic services in the region in which demand was elastic; but of course the ILECs are not unregulated monopolists. The far more plausible expectation would therefore be that total expenditures, including investment expenditures, would vary directly rather than inversely with the cost of basic service.

these errors in specifying the model and measuring the key variables, any finding with respect to particular coefficients is dubious at best.

10. In summary, Professor Willig's econometric results fall far short of supporting his conclusion (par. 121) that low UNE prices both facilitate CLEC entry and induce increased levels of ILEC investment in response. Because (1) critical variables are not aligned temporally (e.g., some CLEC entry occurred *before* the period for which retail and UNE-P prices are recorded and ILEC investments for the first three years of the period occurred before CLECs employed UNEs at the end of the period) and (2) some of the explanatory variables he has identified have implausible signs: e.g., while he reasonably hypothesized that CLECs are more likely to enter where average revenues per subscriber are higher, his model suggest the opposite. This means that his estimated relations are likely to be seriously distorted. Further, he has not provided information sufficient for an independent test of whether his conclusions would remain if more reasonable model specifications were employed.

ATTACHMENT C

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Section 251 Unbundling	)	
Obligations of Incumbent Local	)	CC Docket No. 01-338
Exchange Carriers	)	
	)	
Implementation of the Local Competition	)	
Provisions in the Telecommunications	)	CC Docket No. 96-98
Act of 1996	)	
	)	
Deployment of Wireline Services	)	
Offering Advanced Telecommunications	)	CC Docket No. 98-147
Capability	)	

UNE-P AND INVESTMENT

Prepared for and Submitted by

BellSouth, SBC, and Verizon

July 2002

UNE-P AND INVESTMENT

The facts on the ground show that facilities-based investment by CLECs is *lower* in states with high volumes of UNE-P than in states with low volumes of UNE-P. The facts also show that AT&T's claim that there is a correlation between high volumes of UNE-P and ILEC investment is wrong. AT&T supports its contrary arguments with data from just a few hand-picked states, and in some cases with data regarding only AT&T's own investments, rather than those of CLECs as a whole.

A. Real-World Experience Confirms That UNE-P Impedes CLEC Facilities-Based Investment.

AT&T claims that CLECs need the UNE-P in order to "develop[] a sufficiently large customer base" to make it economical "to transfer . . . customers off the ILECs' switches entirely onto" the CLECs' own switches.[1] AT&T asserts that, as a result, "facilities-investment is highest where UNEs are most available."[2] The facts show otherwise.

1. Data from all states with significant CLEC entry demonstrate that the availability of the UNE-P decreases the level of facilities-based competition.

To support its theory that UNE-P leads to facilities-based competition, AT&T points to its own business plan in just two states, California and New York. But the data from all states with significant CLEC entry refute this theory. As demonstrated in Figure 1, a simple regression analysis shows that facilities-based competition within a state decreases as UNE-P penetration within that state increases. In statistical terms, there is a strong *negative* correlation between facilities-based competition and UNE-P usage.[3]

Figure 1 is based on data from the 26 states where, as of year-end 2001, total CLEC facilities-based and UNE-P lines represented at least 10 percent or more of the BOC access lines within those states.[4] These 26 states represent 87 percent of all facilities-based CLEC lines and 91 percent of all UNE-P lines.[5] These states account for 76 percent of all CLEC switches. They

[1] AT&T Brief at 61.

[2] AT&T Brief at vi.

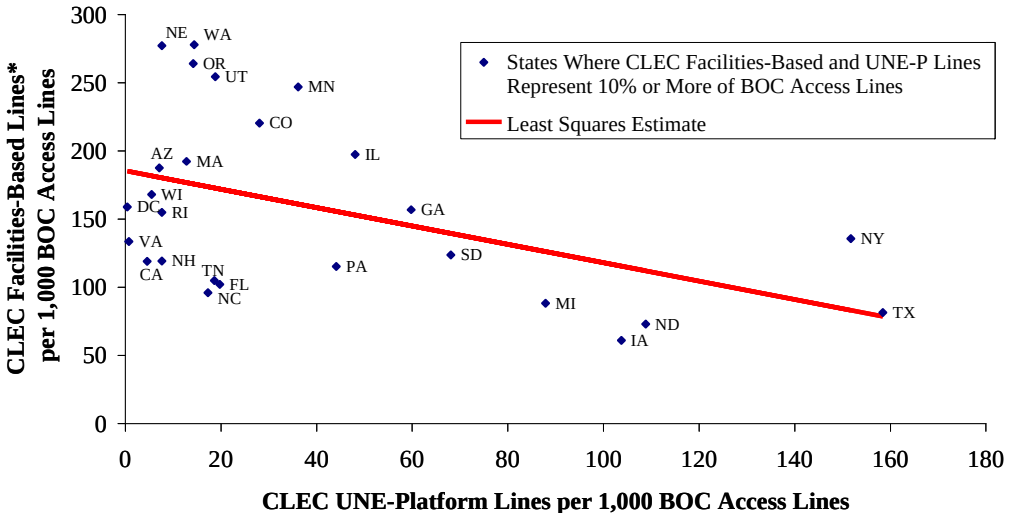
[3] Appendix A contains the results of the statistical analysis. It demonstrates that, to a 95-percent level of confidence, there is a statistically significant *negative* correlation between these two variables.

[4] We have normalized CLEC lines against the BOC access lines within a state, rather than all ILEC lines within that state, because data are not available for CLEC lines in non-BOC territory (including in the former GTE territory). This permits an apples-to-apples comparison of the CLEC lines within a BOC's territory in a given state to the BOC's own lines within that state.

[5] States where total CLEC lines represent less than 10 percent of BOC access lines were properly excluded from this analysis. These states typically have relatively low volumes of both facilities-based lines and UNE-P, which produces a close to 1:1 correlation between these two variables that, given the relatively small volumes involved, is not meaningful as a statistical matter. The 10-percent threshold applied in Figure 1 removes those states that merely add statistical noise to the analysis. In any event, including these states does not produce a statistically significant positive correlation, but rather a statistically insignificant correlation. Thus, this analysis of all states also does not support AT&T's claims.

also contain nearly three-quarters of all BOC access lines. They include all of the states in which, as of year-end 2001, AT&T was providing UNE-P to residential consumers.[6]

Figure 1. Facilities-Based Competition Decreases as UNE-P Penetration Increases



*Facilities-based lines are based on CLEC E911 listings as of year-end 2001.

The inverse relationship between facilities-based competition and UNE-P usage is particularly striking in the business market.[7] As of year-end 2001, CLECs served at least 13 million, and more likely closer to 20 million business lines using their own switches, compared to only 1.6 million business lines through UNE-P.[8] Nearly all of these lines were originally acquired and continue to be served by CLECs using their own switches; only a negligible amount of facilities-based lines have been migrated from UNE-P. Thus, the pattern is just the opposite of what AT&T claims: relatively low UNE-P volumes are associated with relatively high facilities-based volumes.

This relationship also is evident in residential markets. UNE-P usage is heavily concentrated in residential markets: approximately 70 percent of all UNE-P lines serve residential customers. But the states in which facilities-based residential competition is most

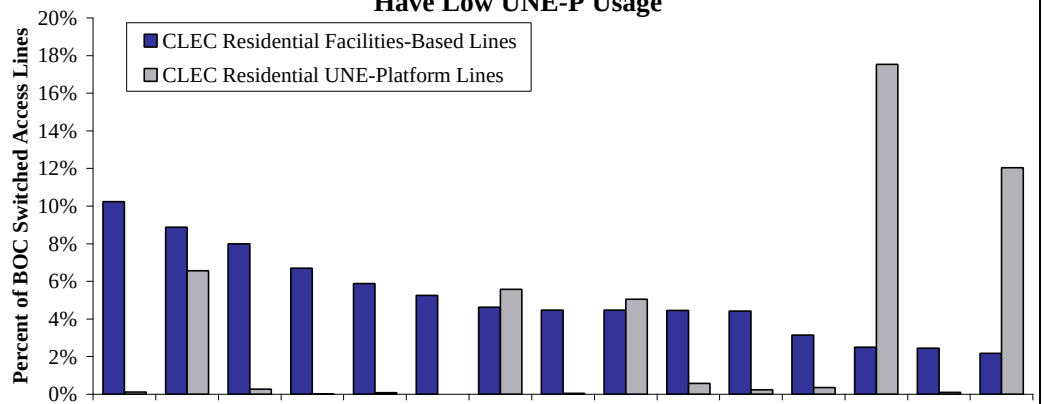
[6] AT&T is providing local residential service using UNEs in New York, Texas, Michigan, Georgia, Illinois, and Ohio, and has announced plans to begin providing service in New Jersey and California later this year. *See* AT&T Press Release, *AT&T Says It's Eager to Compete in PA. Local Phone Market, Hopeful That Regulatory Judge's Opinion Today Will Pave the Way* (May 7, 2002); AT&T Press Release, *AT&T Enters Illinois Residential Local Phone Market* (June 5, 2002); AT&T Press Release, *AT&T Enters Ohio Residential Local Phone Market* (June 11, 2002); AT&T Press Release, *AT&T To Offer Residential Local Service in New Jersey Later This Summer* (July 15, 2002).

[7] The fact that UNE-P volumes have recently begun to increase significantly in certain states with substantial facilities-based competition, such as Michigan and California, in no way suggests a positive correlation between facilities-based competition and UNE-P usage in those states. The recent increase in UNE-P usage in those and other states is a result of recent decreases in UNE-P rates and is occurring *despite*, not because of, the substantial facilities that were previously deployed.

[8] *See UNE Fact Report 2002* at II-4.

advanced tend to have very low levels of residential UNE-P. For example, the five states with the most facilities-based residential lines in proportion to the BOC access lines in each state are Rhode Island, Illinois, Massachusetts, Virginia, and New Hampshire.[9] In each of these states except Illinois, residential UNE-P represents less than 1 percent of the BOC access lines in the state. *See* Figure 2. This same is true with respect to all but five of the 15 states with the highest level of facilities-based residential competition. *See id.*

Figure 2. Most States with High Levels of Facilities-Based Residential Competition Have Low UNE-P Usage



Conversely, the level of residential UNE-P is highest in those residential markets where levels of facilities-based residential competition are relatively low. The three states with the highest residential UNE-P penetration (by far) are New York, Texas, and Michigan, where residential UNE-P lines represent 26 percent, 18 percent, and 12 percent of the BOC residential lines in those states, respectively. By comparison, facilities-based residential lines represent only 2.5 percent or less of the BOC access lines in each of those states. Indeed, New York – the state championed as the gold-standard in AT&T's analysis – has proportionately more residential UNE-P than any other state, but its level of facilities-based residential competition does not even place it among the top-15 states. And there is no evidence to suggest that AT&T or any other CLEC has actually migrated residential lines from UNE-P to their own switches. As these facts demonstrate, UNE-P does not stimulate facilities-based competition in residential markets, but impedes it.

Most facilities-based residential competition is provided through cable telephony (and to an increasing degree through wireless).[10] Quite obviously, UNE-P does nothing to facilitate the deployment of cable telephony, because cable telephony is provided over an entirely separate network. But UNE-P can discourage the investment in cable telephony from ever occurring, and the facts indicate that is exactly what is occurring. As noted above, the states with the highest levels of residential UNE-P all have low levels of facilities-based residential competition through cable telephony. This is why one of the nation's two largest cable telephony providers – Cox –

[9] The analysis of competition in residential markets excludes the states served by Qwest in the analysis because residential E911 listings for Qwest were not available.

[10] *See UNE Fact Report 2002* at II-11 & IV-10.

has stated that "instead of promoting local competition, the current broad availability of UNEs and the Commission's pricing methodology actually jeopardize the development of facilities-based competition."[11] Likewise, analyst Legg Mason has recently stated with respect to WorldCom's plan to expand its UNE-P offerings, "the more successful the plan is, the more it will reduce the attractiveness of the telephony opportunity for cable."[12] And "[g]iven how the . . . plan affects the attractiveness of telephony to new facilities-based providers," state regulators may be forced to modify state rates "if they want to encourage new facilities-based competitors, such as cable."[13]

2. Even the more limited comparison of New York to California proves the negative influence of UNE-P on facilities-based competition.

The evidence AT&T submits to support its claims fails to prove its theory that access to the UNE-P leads to greater facilities-based investment. In the first place, rather than analyze the full range of relevant data, or even some reasonable subset, AT&T supplies an essentially anecdotal discussion of its own business plan in just two states – New York and California. AT&T reports that it has deployed more circuit switches in New York, where UNE-P is widespread, than in California, where it isn't – and claims that this proves its thesis that more UNE-P leads to more facilities-based investment.[14]

This is just brazen data dredging. And it fails even on its own terms. More importantly, the proliferation of UNE-P customers in New York, and not in California, has *not* in fact resulted in proportionately more competitive facilities-based investment or proportionately more facilities-based competition in New York.

In the analysis of "cause" and "effect," timing matters – the cause has to come first, the effect has to follow. AT&T and other CLECs deployed most of their circuit switches in New York *before* the rise of UNE-P.[15] AT&T did not begin providing UNE-P service in New York until August 1999, and did not do so in large volumes until late 1999 at the earliest.[16] Yet AT&T deployed far *more* circuit switches in New York *before* year-end 1999 (15 switches) than it has deployed since (2 switches).[17] CLECs as a whole in New York likewise deployed most of their switches (55 of 73) before the rise of UNE-P in that state.

---

[11] Comments of Cox Communications, Inc. at 12, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98 (FCC filed May 26, 1999).

[12] Legg Mason, *WorldCom/MCI Bundled Phone Offer Challenges Rivals, Regulators* at 2 (Apr. 23, 2002).

[13] *Id.* at 4.

[14] *See* AT&T Brief at 49-50; AT&T Willig Decl. ¶ 107.

[15] Appendix B provides the dates on which CLEC switches in New York and California were deployed.

[16] By December 1999, when AT&T began offering residential service through UNE-P statewide, the company had signed up 50,000 customers in New York. *See* AT&T Press Release, *AT&T Offers New Yorkers a New Choice for Local Residential Phone Service* (Dec. 1, 1999).

[17] The same is true for WorldCom, the CLEC that is most comparable to AT&T. WorldCom began providing UNE-P service in New York a few months before AT&T, and also had acquired a large volume of platforms by late 1999. But like AT&T, WorldCom deployed most of its switches (8 of 9) prior to that time. *See* Figure 3.

Nor is it even appropriate to attribute the few switches that AT&T and other CLECs have deployed since year-end 1999 in New York to the rise of UNE-P. As noted above, CLECs that have obtained UNE-P are not migrating those UNE-P customers to their own switches in any significant numbers. In New York, for example, AT&T and WorldCom together provide UNE-P service to well over one million residential customers[18] – enough customers, in other words, to fill five to ten large switches (or an even larger number of smaller ones). Even though AT&T and WorldCom also operate 26 local circuit switches in New York state,[19] neither appears to have converted any residential customers in New York to their own switches.[20]

Moreover, since the end of 1999 – which is to say, since the time that UNE-P competition supposedly began to spur facilities-based competition in *New York* – AT&T, WorldCom, and all CLECs collectively, have actually been deploying more of their new switches in *California*, where AT&T claims that UNE-P has been less viable than in New York. *See* Figure 3. In fact, since 1999, CLECs have deployed more than twice as many switches in California as in New York, despite the fact that New York's demographics make it a more likely target for facilities-based competition than California.[21] *See id.* Today, despite far higher volumes of UNE-P in New York than in California, CLEC circuit-switch deployment in California is roughly equal to CLEC switch deployment in New York – hardly the result one would expect if AT&T's theory were correct. *See* Figure 4.

---

[18] S. Alexander, *Judge Recommends Qwest Be Fined for Impeding Local Service by AT&T; But AT&T Says It Won't Enter Market*, Star Trib. (Feb. 26, 2002) (AT&T vice president Tom Pelto said that AT&T uses the UNE-Platform to provide local residential phone service to about 1 million people in New York.); M. McDonald, *Local Phone Fight Gets Put on Hold*, Crain's N.Y. Bus. at 1 (Mar. 5, 2001) (WorldCom accumulated 400,000 customers in New York).

[19] *See* Appendix B; *see also UNE Fact Report 2002* at Appendix B.

[20] *See* Declaration of Vijetha Huffman ¶ 5, *attached to* Comments of WorldCom, Inc., *Application of Verizon New Jersey, Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), Verizon Global Networks Inc. and Verizon Select Services Inc. for Authorization To Provide In-Region, InterLATA Services in New Jersey*, CC Docket No. 01-347 (FCC filed Jan. 14, 2002) ("UNE-P . . . is the only service-entry vehicle that WorldCom uses to offer local residential service, and it is the only service-delivery option that WorldCom currently views as even potentially viable."); Supplemental Declaration of Michael Lieberman on Behalf of AT&T Corp. ¶ 20, *attached to* Ex Parte Letter of Peter Keisler, Sidley Austin Brown & Wood (representing AT&T), to William F. Caton, FCC, CC Docket No. 01-324 (Feb. 8, 2002) (AT&T has recently stated that it has not pursued a strategy of converting platform customers to its own facilities "to provide basic local residential service to customers anywhere in the country.").

[21] For example, population density is nearly twice as high in New York as it is in California. *See* Netstate.com, *Census 2000 State Population Information*, http://www.netstate.com/states/tables/st_population.htm (population per square mile: California – 207, New York – 348). New York also has a much higher percentage of its population living in large cities than California. For example, 50 percent of the New York population lives in the state's 15 largest cities, compared to 30 percent in California. *See* United States Census Bureau, *Census 2000 Redistricting Data*, http://www.census.gov/clo/www/redistricting.html.

Figure 3. Despite the Rise of UNE-P in New York, CLECs Have Deployed More Switches in California

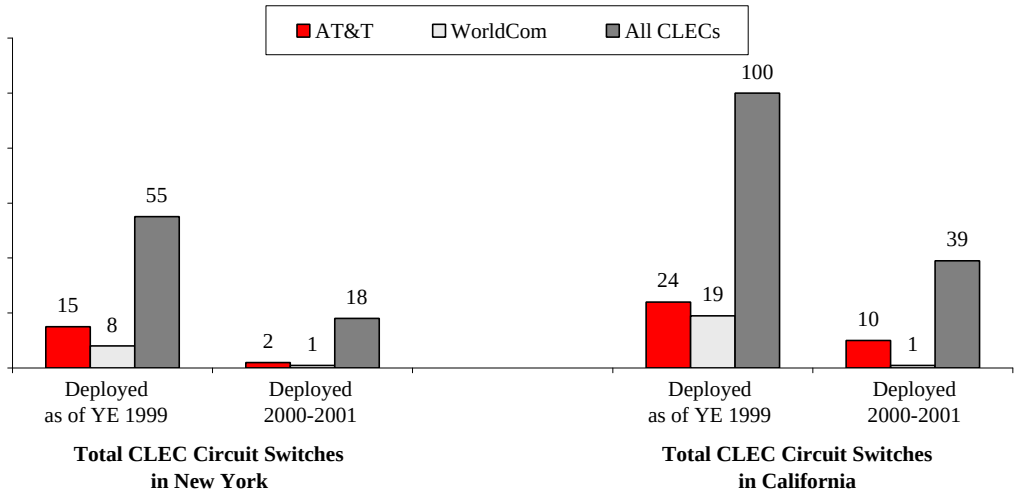
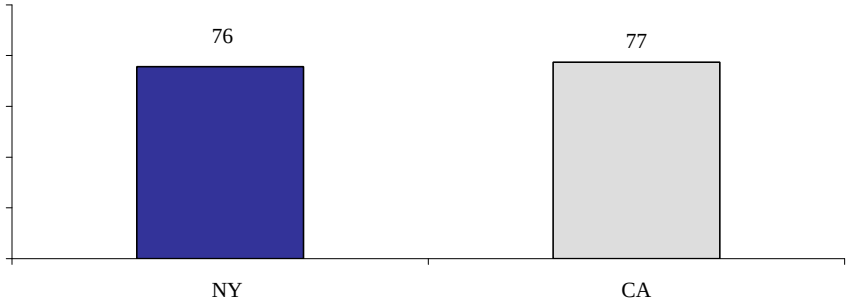


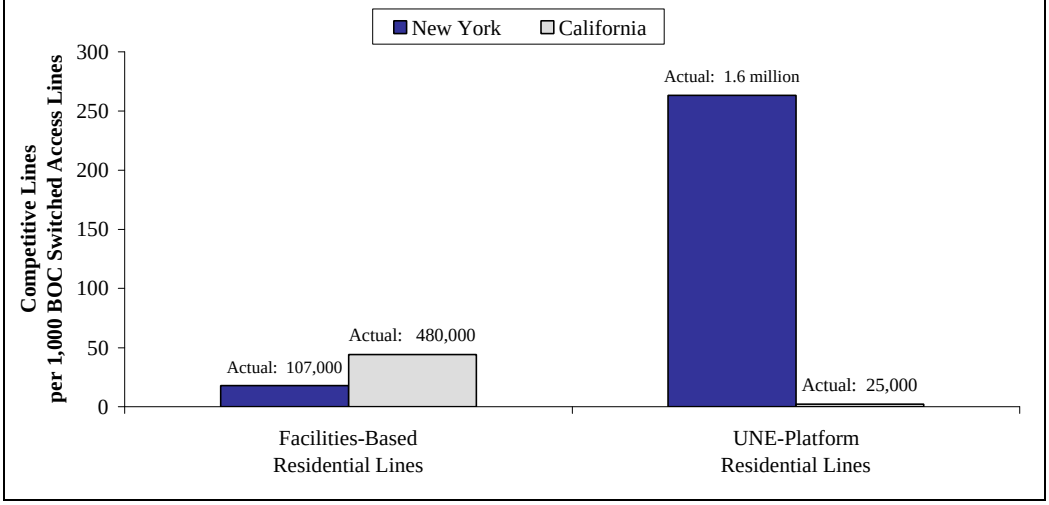
Figure 4. CLEC Switch Deployment in California Is Comparable to New York Despite Much Lower UNE-P



California also has much higher levels of facilities-based residential competition than New York, despite far lower levels of UNE-P in California. As of year-end 2001, CLECs were serving approximately 1.6 million residential lines through UNE-P in New York – roughly 26 percent of the number of BOC access lines in the state. As of that same date, CLECs were serving only 25,000 residential lines through UNE-P in California – less than 1 percent of the number of BOC access lines in the state. Despite this enormous disparity, the number of facilities-based residential lines is proportionately *higher* in California – more than double – than the number in New York. *See* Figure 5.[22]

[22] There is likely an even greater number of facilities-based residential lines in California than this analysis indicates because it does not include competitive lines located in Verizon's service area, which includes approximately 4 million switched access lines in Los Angeles and surrounding MSAs. There are numerous competitors providing facilities-based service in Verizon's territory, however. For example, as discussed below, Cox provides cable telephony in Orange County.

Figure 5. Facilities-Based Residential Lines in California Are Greater Than in New York Despite Much Lower UNE-P



Facilities-based residential competition also is much more widely *available* in California than in New York. In New York, only one cable operator – Cablevision – has deployed cable telephony on an extremely limited basis (to fewer than 15,000 homes).[23] Despite original plans to deploy its service more broadly,[24] Cablevision stopped marketing its service in late 2000,[25] when residential UNE-P volumes in NY had already exceeded 1 million lines. In California, by contrast, cable telephony is now available to several million homes and growing. AT&T's cable network in the Bay Area passes 2.7 million homes,[26] at least one-third of which already "can get cable telephony today."[27] AT&T claims that among such homes there already is "19% telephony penetration" and "many communities in high 20s."[28] Moreover, the "backbone and headend segments of rebuilds [are] nearly complete,"[29] which will enable AT&T to provide cable telephony to those homes served by its San Francisco network that can not already receive it. In addition to AT&T, Cox offers cable telephony to nearly 700,000 homes in Orange County and

[23] *See* Cablevision Systems Corp., Form 10-K (SEC filed Apr. 1, 2002) (As of YE 2001, Cablevision provided residential telephone service to approximately 13,400 subscribers in Long Island and parts of southern Connecticut).

[24] *See*, *e.g.*, P. Joshi, *All This and Cable, Too*, Newsday at C08 (Sept. 14, 1998) ("Right now, [Cablevision] has offered telephone service to about 6,000 homes in nine Nassau County communities. The company plans to aggressively roll out throughout metropolitan New York over the next several years.").

[25] *See*, *e.g.*, J. Reif-Cohen, *et al.*, Merrill Lynch Capital Markets, Investext Rpt. No. 8305280, Cablevision Systems Corp. – Company Report at *5 (Dec. 17, 2001) ("For the past year, Cablevision has stopped marketing its telephone service and will not add anymore telephone homes to its universe.").

[26] Dan Somers, President and CEO, AT&T Broadband, *Operational Overview*, AT&T Broadband, Investor Presentation at 18 (July 2001).

[27] *Comcast Purchase of AT&T Means More Services*, Silicon Valley/San Jose Bus. J. at 11 (Jan. 4, 2002).

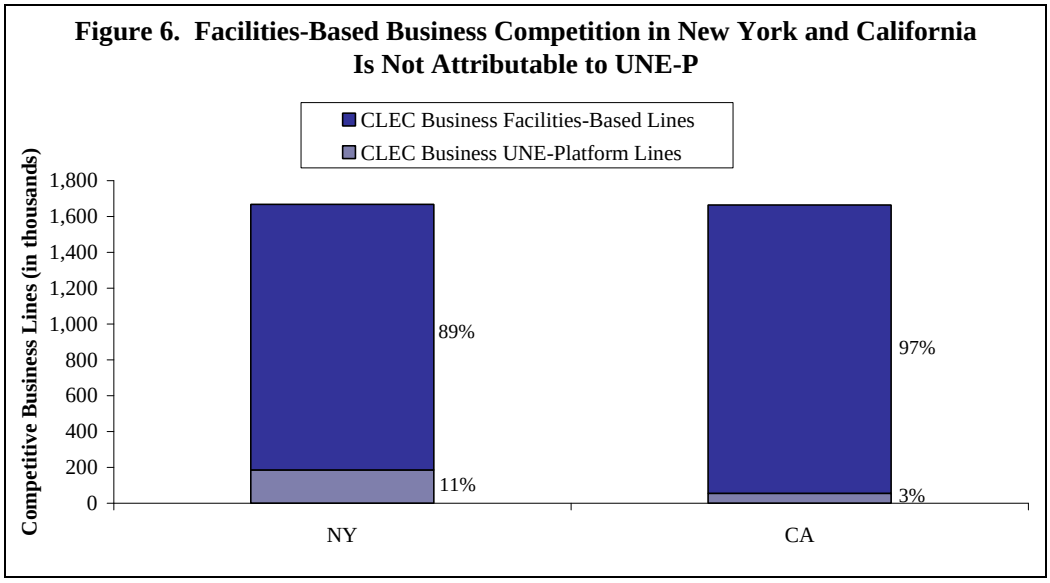
[28] Dan Somers, President and CEO, AT&T Broadband, *Operational Overview*, AT&T Broadband, Investor Presentation at 18 (July 2001).

[29] *Id.*

San Diego.[30] Cox makes this service available to 97 percent of the homes it passes in Orange County, and 77 percent of the homes it passes in San Diego.[31]

Finally, the inverse relationship between facilities-based competition and UNE-P penetration is particularly evident in comparing business markets in New York and California. Both AT&T and WorldCom use UNE-P to serve some business customers in New York, but these numbers are dwarfed by the number of business lines that AT&T and WorldCom serve over their own facilities. This also is true generally for all CLECs, not just AT&T and WorldCom. New York CLECs collectively serve at least 1.5 million business lines using their own switches, compared to only 186,000 lines through UNE-P. *See* Figure 6. California CLECs collectively serve at least 1.6 million business lines using their own switches, compared to only 54,000 lines through UNE-P. Again, virtually all of these lines have always been served using CLEC switches; the number of lines migrated from UNE-P to CLEC switches is minuscule. Thus, contrary to AT&T's claims, facilities-based business competition in both states has evolved prior to the availability of the UNE-P, or despite its availability, not because of it. *See id.*

Figure 6. Facilities-Based Business Competition in New York and California Is Not Attributable to UNE-P



[30] *Top 100 Systems*, Cablevision Magazine (Oct. 22, 2001); Cox Communications, *Presentation before the Lehman Brothers Telecom Trends and Technology Conference* (Dec. 7, 2001), http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=cox&script=1200 (Cox offers cable telephony to approximately 257,000 customers in Orange County, and approximately 406,000 customers in San Diego).

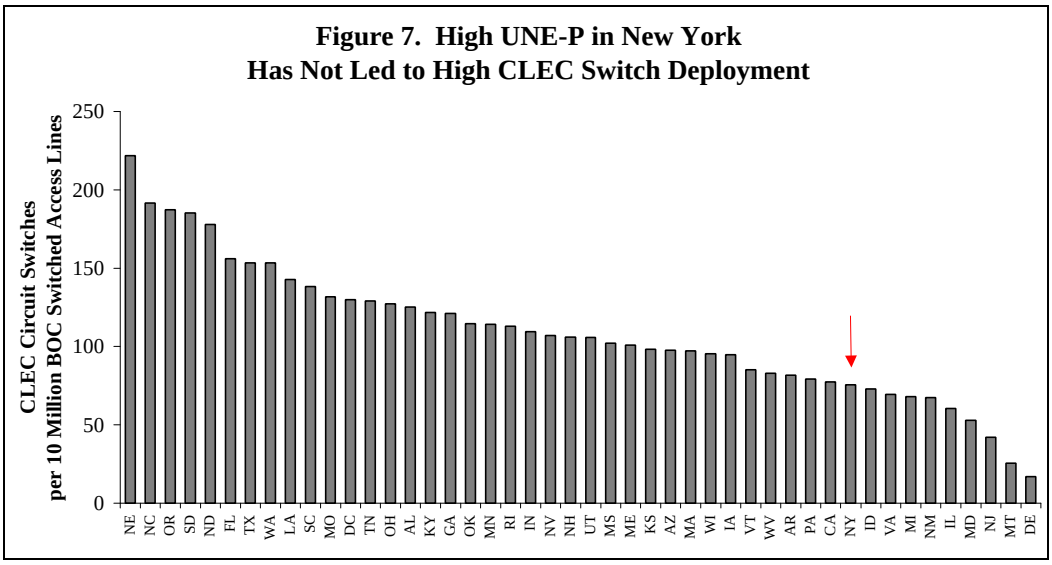
[31] Cox Communications, *Presentation before the Lehman Brothers Telecom Trends and Technology Conference* (Dec. 7, 2001), http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=cox&script=1200 (Cox offers cable telephony to approximately 257,000 customers in Orange County, and approximately 406,000 customers in San Diego).

3. AT&T's theory fares no better when New York is compared to other states.

UNE-P penetration is far greater in New York than in any other state. CLECs in New York also serve a large number of lines with their own switches. But when the numbers are normalized against the number of BOC access lines in each state, the number of facilities-based CLEC lines is found to be proportionately higher in many other states. And this is all the more striking given that New York's demographic characteristics – particularly its high overall population density and the massive concentration of telecommunications revenues in New York City – make it a far more attractive candidate for facilities-based competition than most other states.

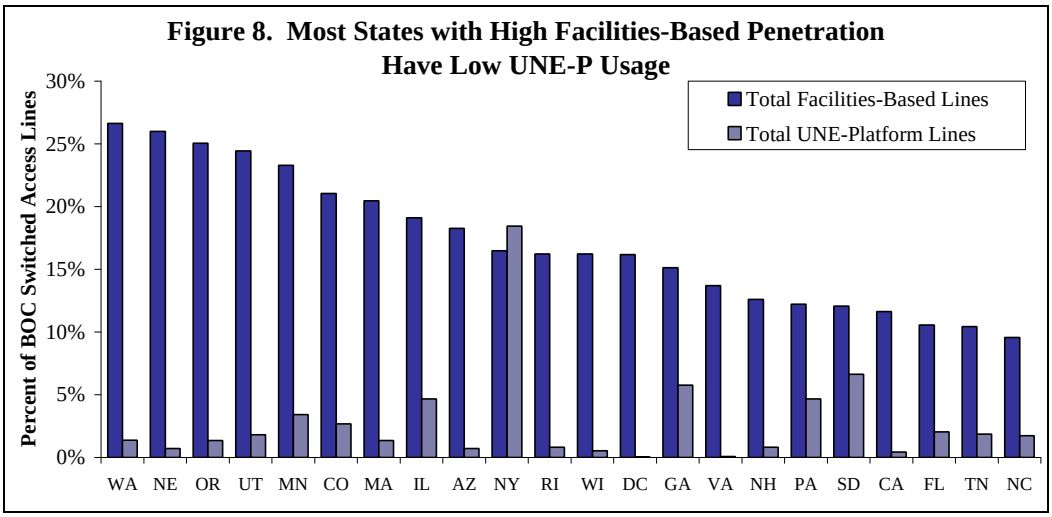
For example, among the 48 contiguous states,[32] New York ranks only 37th in terms of the number of CLEC *switches* deployed per BOC access lines in the state. *See* Figure 7.

Figure 7. High UNE-P in New York Has Not Led to High CLEC Switch Deployment



Moreover, New York ranks only tenth in terms of the number of facilities-based CLEC *lines*. *See* Figure 8. Significantly, *all* of the nine states that have proportionately more facilities-based lines than New York also have much lower volumes of UNE-P. *See id.*

[32] Data for the 48 contiguous states exclude Connecticut but include the District of Columbia.



Even within the former Bell Atlantic region, New York does not stand out in terms of facilities-based competition. Six states within the former Bell Atlantic region have more facilities-based residential competition than New York.[33]

Finally, data from three of the largest states in Verizon's region – New York, Massachusetts, and Pennsylvania – suggest a direct relationship between high levels of residential UNE-P and low levels of facilities-based residential competition.[34] New York has the most residential UNE-P (26 percent of BOC lines), but the least facilities-based residential competition (2 percent of BOC lines); Massachusetts has the least residential UNE-P (less than 1 percent of BOC lines), and the most facilities-based residential competition (8 percent of BOC lines); and Pennsylvania falls in the middle in terms of both residential UNE-P (6 percent of BOC lines) and facilities-based residential lines (5 percent of BOC lines). Significantly, while WorldCom has decided to provide residential UNE-P in both Massachusetts and Pennsylvania, AT&T has declined to do so. AT&T has instead made cable telephony its exclusive means of serving residential customers in both states.

B. The Data Do Not Support AT&T's Claims that UNE-P Encourages ILEC Investment.

Limiting its analysis to the 13 states that have already been granted section 271 approval, or for which an application is pending, AT&T asserts that the "availability of UNE-P increases *ILEC* incentives to build because UNE-P is a precursor to facilities entry by CLECs."[35] AT&T claims that, among these states, the three with the highest ILEC investment rates in 1999 and

[33] Rhode Island, Massachusetts, New Hampshire, District of Columbia, Pennsylvania, and Virginia. This is based on internal company data collected for the *UNE Fact Report 2002*.

[34] The data in this paragraph is based on internal company data collected for the *UNE Fact Report 2002*.

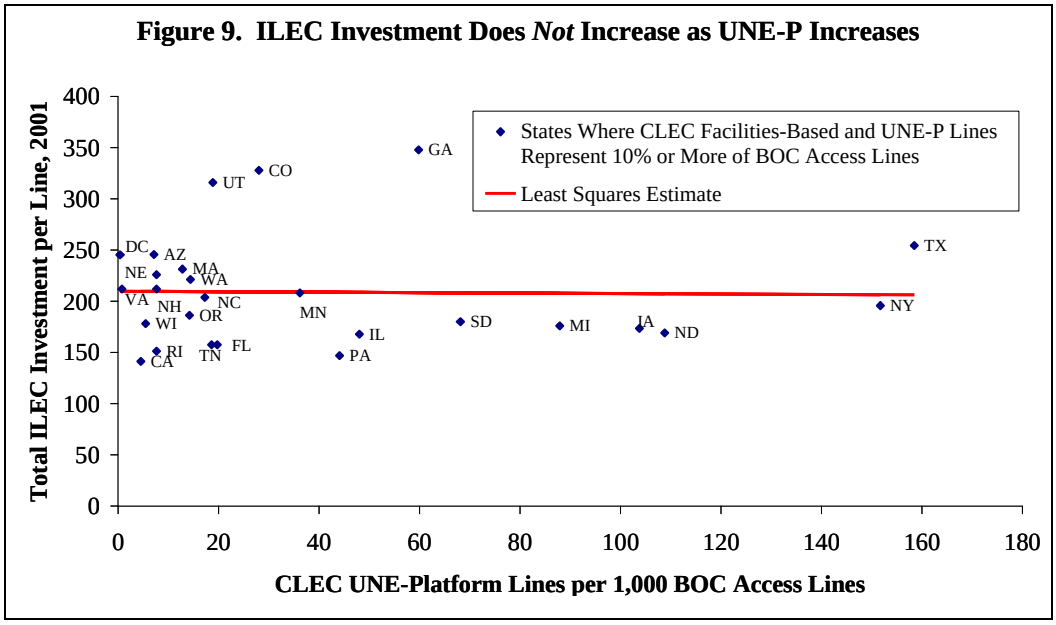
[35] AT&T Brief at 66.

2000 were Georgia, Texas, and New York, which it claims also are the states with the highest levels of UNE-P entry.[36]

As an initial matter, fails to explain why it should limit its analysis to these 13 states, and there is no logical basis for doing so. Many states that have not yet received section 271 approval have significant levels of local competition, provided both through CLECs' own facilities and through UNE-P. Conversely, some of the states that have received 271 approval still have relatively low levels of competition, even though those markets have been fully opened, as the FCC has found.

As explained above, however, there are 26 states in which CLECs have captured 10 percent or more of the BOC access lines in those states. To the extent that UNE-P usage is, as AT&T claims, increasing ILEC investment, it should be evident in a comparison of the data from these states. But, as demonstrated in Figure 9, there is no statistically significant correlation between UNE-P levels and ILEC investment in these 26 states.[37] Figure 9 is a simple regression analysis that compares the levels of ILEC investment within a state with the level of UNE-P penetration in that state. It demonstrates that there is no relationship between these two variables. Thus, the evidence fails to support AT&T's assertion of a relationship between UNE-P and ILEC investment

Figure 9. ILEC Investment Does *Not* Increase as UNE-P Increases



AT&T's analysis is further flawed because it is limited to just two years, 1999 and 2000. But some states have historically received proportionately more ILEC investment than others, with the record stretching back into the years preceding the advent of UNE-P usage. For example, AT&T claims that, in both 1999 and 2000, there was much larger ILEC investment in

[36] *See* AT&T Brief at 66; AT&T Willig Decl. ¶ 108.

[37] Appendix C contains the results of the statistical analysis. It demonstrates that, to a 95-percent level of confidence, there is no statistically significant correlation between these two variables.

Georgia (where there is relatively high UNE-P) than in Massachusetts (where there is relatively low UNE-P).[38] But that was also so in 1996, 1997, and 1998.[39] AT&T likewise claims that ILEC investment in California in 2000 was far lower than in New York, Texas, and all other 271 states. Here, too, however, that simply continues a longstanding historical pattern.[40] Here again, the data fail to support AT&T's theory that the UNE-P promotes ILEC investment.

The only relevant measure of what impact, if any, UNE-P has had in a particular state is the relative *change* in ILEC investment that has occurred since the advent of UNE-P. The data show that, even among the 13 states chosen by AT&T, there is no correlation between the volume of UNE-P in the state and the average increase in ILEC investment in that state.

For example, focusing on the two states – Georgia and Massachusetts – on which AT&T anchors its analysis, the average annual increase in ILEC investment per line over the last two years was in fact higher in Massachusetts than in Georgia, despite the fact that UNE-P penetration in Georgia is six times higher than in Massachusetts.[41] In fact, during this period the average increase in ILEC investment was higher in Massachusetts than in *any* other 271-approved state.[42] And among the Verizon states, the second highest increase in ILEC investment during this period was Rhode Island, where, as in Massachusetts, there is extensive facilities-based competition but only modest UNE-P usage. AT&T's other two main examples – New York and Texas – ranked only 5th and 10th, respectively, among the fourteen 271-approved states in terms of *growth* of ILEC investment over the past two years.

---

[38] AT&T Willig Decl. ¶ 109.

[39] During 1996, 1997, and 1998, ILEC investment per line in Massachusetts was $144, $151, and $153, respectively, compared to $227, $171, and $183 in Georgia. *See* FCC, *ARMIS Data Retrieval System*, http://www.fcc.gov/wcb/armis/db ("*ARMIS Database*"). In calculating ILEC investment per line, the methodology used is the same as that used by AT&T. *See* AT&T Willig Decl. ¶ 108, fn.23.

AT&T's claim that the rise of UNE-P in Georgia correlates with higher BellSouth investment in 1999 and 2000 also fails for another reason: UNE-P was not commercially available in Georgia until February 2000, and was not ordered in significant volumes until later that year. Thus, the rise of UNE-P in Georgia could not possibly have had any correlation with BellSouth investment in 1999, and any correlation with BellSouth investment in 2000 is highly unlikely.

[40] During 1996, 1997, and 1998, ILEC investment per line in California was $112, $125, and $118, respectively. This produces an average per-line investment of $118 during those years. The average per-line investment of the 14 states with an approved or pending section 271 application during those same three years was as follows: Arkansas, $157; Georgia, $194; Kansas, $141; Louisiana, $114; Maine, $128; Massachusetts, $149; Missouri, $156; New Jersey, $141; New York, $139; Oklahoma, $122; Pennsylvania, $101; Rhode Island, $92; Texas, $186; Vermont, $140. *See ARMIS Database.*

[41] In 2000 and 2001, ILEC investment per line increased by 7 and 50 percent, respectively, in Massachusetts (an average of 28 percent), compared to 22 and 30 percent, respectively, in Georgia (an average of 26 percent). *See ARMIS Database*.

[42] The average growth in rates of ILEC investment over the past two years in the 271-approved states were as follows: Arkansas, 26%; Georgia, 26%; Kansas, 11%; Louisiana, 6%; Maine, 16%; Massachusetts, 28%; Missouri, 21%; New Jersey, 1%; New York, 13%; Oklahoma, 17%; Pennsylvania, 6%; Rhode Island, 17%; Texas, 20%; Vermont, 20%. *See ARMIS Database*.

APPENDIX A. REGRESSION STATISTICS FOR FIGURE 1

Regression Statistics	
Multiple R	0.468664202
R Square	0.219646135
Adjusted R Square	0.18713139
Standard Error	59.50012169
Observations	26

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	23915.47043	23915.47043	6.755277908	0.015736696
Residual	24	84966.34754	3540.264481		
Total	25	108881.818			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	185.4032671	15.68746366	11.81856233	1.71219E-11	153.0259401	217.7805941	153.0259401	217.7805941
X Variable 1	-0.673618956	0.259174751	-2.599091747	0.015736696	-1.208529241	-0.138708671	-1.208529241	-0.138708671

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*
1	180.6044122	6.905939381
2	182.337845	-63.21654081
3	166.5051474	54.00558292
4	185.1371276	-26.16290469
5	172.1167124	-69.88739742
6	145.1336051	11.87031769
7	153.047791	44.27183746
8	115.5301059	-54.37010294
9	176.7735875	15.56286116
10	126.1968694	-37.93628646
11	161.0429272	85.9474555
12	180.2891146	97.02851692
13	180.2643091	-60.84169231
14	83.17953903	52.47516256
15	173.7671997	-77.73334964
16	112.1112315	-39.07491477
17	175.8588531	88.36664056
18	155.6945439	-40.48412761
19	180.2587223	-25.36378541
20	139.5179939	-15.69243439
21	172.8737062	-67.83797457
22	78.66648786	2.914796534
23	172.7077562	81.75518014
24	184.8972561	-51.14385667
25	175.7211714	102.1846702
26	181.7213168	-13.54359336

APPENDIX B. DEPLOYMENT OF CLEC CIRCUIT SWITCHES IN CALIFORNIA AND NEW YORK

The list of switches in this appendix is based on information contained in Telcordia's *Local Exchange Routing Guide*. The deployment date for these switches is based on information contained in Telcordia's Business Integrated Rating/Routing Database System.

CLEC Circuit Switches Serving BOC Rate Centers in California and New York					
State	**Type**	**CLEC**	**City**	**Street**	**Year Deployed**
CA	DS	ADVANCED TELCOM GROUP	CONCORD	2041 EAST ST	2001
CA	5E	ADVANCED TELCOM GROUP	SAN RAFAEL	1009 E ST	2000
CA	5E	ALLEGIANCE TELECOM	LOS ANGELES	818 W 7TH ST. SUITE 320	1998
CA	5E	ALLEGIANCE TELECOM	RANCHO CORDOVA	10995 GOLD CENTER DR	2000
CA	5E	ALLEGIANCE TELECOM	SAN DIEGO	5761 COPLEY DR	1999
CA	5E	ALLEGIANCE TELECOM	SAN FRANCISCO	651 BRANNAN STREET, 3RD FLOOR	1998
CA	5E	ALLEGIANCE TELECOM	SANTA ANA	1251 E DYER RD	1999
CA	5E2	ALLEGIANCE TELECOM	SUNNYVALE	677 PALOMAR AVE	2000
CA	DS	ARRIVAL COMMUNICATIONS	BAKERSFIELD	1800 19TH ST	2001
CA	5E	AT&T	ANAHEIM	217 N LEMON ST	1999
CA	4E	AT&T	ANAHEIM	217 N LEMON ST	1997
CA	4E	AT&T	DUNNIGAN	INTER YOLO CNTY	1998
CA	5E	AT&T	DUNNIGAN	INTER YOLO COUNTY & ROADS 6 AND 86	2000
CA	4E	AT&T	GARDENA	17200 S VERMONT AVE	1997
CA	5E	AT&T	LOS ANGELES	700 S FLOWER ST	1997
CA	4E	AT&T	LOS ANGELES	420 S GRAND AVE	1998
CA	NT5	AT&T	LOS ANGELES	420 S GRAND AVE	1999
CA	5E	AT&T	MOJAVE	N-O HWY 58 & 9 MI E-O MOJAVE INDEX D	2000
CA	5E	AT&T	OAKLAND	1587 FRANKLIN ST	2000
CA	4E	AT&T	OAKLAND	1601 FRANKLIN ST	1998
CA	NT5	AT&T	OAKLAND	1601 FRANKLIN ST	2000
CA	5E	AT&T	OAKLAND	344 20TH ST	1997
CA	4E	AT&T	OXNARD	1050 S C ST	1997
CA	5E	AT&T	SACRAMENTO	603 S ST	1998
CA	4E	AT&T	SACRAMENTO	DONOT USE SEE SCRMCA01	1998
CA	4E	AT&T	SAN BERNARDINO	455 2ND ST	1998
CA	5E	AT&T	SAN BERNARDINO	455 W 2ND ST	2000
CA	5E	AT&T	SAN DIEGO	5464 MOREHOUSE DR	1997
CA	NT5	AT&T	SAN DIEGO	650 ROBINSON AVE	2000
CA	4E	AT&T	SAN DIEGO	650 ROBINSON AVE	1998
CA	5E	AT&T	SAN FRANCISCO	1 BUSH ST	1997
CA	NT5	AT&T	SAN FRANCISCO	360 SPEAR ST	2000
CA	5E	AT&T	SAN FRANCISCO	555 PINE ST	1999
CA	4E	AT&T	SAN FRANCISCO	611 FOLSOM ST	1997
CA	5E	AT&T	SAN FRANCISCO	360 SPEAR ST	2001
CA	NT5	AT&T	SAN JOSE	95 ALMADEN AVE	1999
CA	4E	AT&T	SAN JOSE	95 ALMADEN AV	1997
CA	5E	AT&T	SAN JOSE	95 ALMADEN AV	1999
CA	5E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD	2000
CA	4E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD	1997
CA	5E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD	2000
CA	5E	AT&T	STOCKTON	345 N SAN JOAQUIN AV	1992
CA	4E	AT&T	STOCKTON	344 N HUNTER ST	1998
CA	D12	CITIZENS	ELK GROVE	820 ELK GROVE FLORIN RD	1991

CLEC Circuit Switches Serving BOC Rate Centers in California and New York					
State	**Type**	**CLEC**	**City**	**Street**	**Year Deployed**
CA	5E	COX	ALISO VEIJO	17 JOURNEY ST	1997
CA	D12	COX	EL CAJON	1175 N. CUYAMUCA ST.	2000
CA	DMS	COX	RANCHO SANTA MARGARITA	29947 AVENIDA DE LAS BANDERAS	2001
CA	D12	COX	SAN DIEGO	1441 EUCLID AVE	1997
CA	D12	ELECTRIC LIGHTWAVE	RANCHO CORDOVA	3224 LUYUNG DR.	1996
CA	NT5	FIRST WORLD COMMUNICATIONS	ANAHEIM	1520 S LEWIS ST	1997
CA	NT5	FOCAL COMMUNICATIONS	LOS ANGELES	1200 W 7TH ST	1998
CA	DM5	FOCAL COMMUNICATIONS	SAN FRANCISCO	650 TOWNSEND ST	1998
CA	NT5	FOCAL COMMUNICATIONS	SAN JOSE	1741 TECHNOLOGY DR	2000
CA	DS	GLOBAL CROSSING	ANAHEIM	2461 W LA PALMA AVE 2ND FLR	1997
CA	NT5	GLOBAL CROSSING	CALIFORNIA	SAN DIEGO	2001
CA	NT5	GLOBAL CROSSING	SACRAMENTO	1303 J ST	1999
CA	5E	ICG COMMUNICATIONS	ALHAMBRA	2300 W VALLEY BLVD	1999
CA	5E	ICG COMMUNICATIONS	IRVINE	2968 WHITE RD., SUITE 200	1996
CA	5E	ICG COMMUNICATIONS	LAKEWOOD	4007 PARAMOUNT BLVD	1997
CA	5E	ICG COMMUNICATIONS	LOS ANGELES	1905 ARMACOST AVE	1997
CA	5E2	ICG COMMUNICATIONS	LOS ANGELES	600 W 7TH ST	2000
CA	5E2	ICG COMMUNICATIONS	MILPITAS	1175 MONTAGUE EXPRESSWAY	2000
CA	5E	ICG COMMUNICATIONS	OAKLAND	180 GRAND AVE	1996
CA	5E	ICG COMMUNICATIONS	ONTARIO	1471 VALENCIA PL	1999
CA	5E	ICG COMMUNICATIONS	SACRAMENTO	1414 K ST	2000
CA	5E	ICG COMMUNICATIONS	SACRAMENTO	770 L ST	1996
CA	5E	ICG COMMUNICATIONS	SAN DIEGO	8951 COMPLEX DR	1996
CA	5E	ICG COMMUNICATIONS	SAN FRANCISCO	620 3RD ST	1998
CA	5E	ICG COMMUNICATIONS	SAN JOSE	190 PARK CENTER PLAZA	1997
CA	5E	KCINDUR COMM	SAN LUIS OBISPO	872 MORRO ST	1990
CA	DS	LEVEL 3	FRESNO	305 W NAPA AVE	2001
CA	DS	LEVEL 3	WEST SACRAMENTO	1075 TRIANGLE CT	2000
CA	DMS	MPOWER	BELLFLOWER	16730 BELLFLOWER BLVD	1998
CA	DS	MPOWER	EMERYVILLE	1400 65TH ST	2000
CA	NT5	MPOWER	LA MESA	4695 PALM AVE	1998
CA	DMS	MPOWER	POMONA	362 E 4TH ST	1997
CA	DS	MPOWER	SACRAMENTO	9332 TECH CENTER DR	2000
CA	NT5	MPOWER	SAN JOSE	560 CHARCOT AVE	2000
CA	DM5	NET-TEL CORP.	LOS ANGELES	530 W 6TH ST	1999
CA	NT5	NET-TEL CORP.	SAN FRANCISCO	200 PAUL AVE	2000
CA	DMH	NORTH COUNTY COMMUNICATIONS	LOS ANGELES	624 SOUTH GRAND	1999
CA	DMH	NORTH COUNTY COMMUNICATIONS	SACRAMENTO	926 J ST	1999
CA	DMH	NORTH COUNTY COMMUNICATIONS	SAN DIEGO	4008 TAYLOR ST	1999
CA	DMH	NORTH COUNTY COMMUNICATIONS	SAN FRANCISCO	98 BATTERY ST	1999
CA	VCD	PAETEC	LOS ANGELES	530 W 6TH ST	1999
CA	NT5	POINTE COMM INC	EL MONTE	11025 VALLEY BLVD	2000
CA	NT5	POINTE COMM INC	SAN DIEGO	3949 RUFFIN RD	2000
CA	5E	RCN	CARSON	1059 E BEDMAR ST	2000
CA	5E	RCN	SAN FRANCISCO	200 PAUL AVE	1999
CA	D12	SIERRA TELEPHONE CO.	OAKHURST	41950 ROAD 426	1989

CLEC Circuit Switches Serving BOC Rate Centers in California and New York					
State	**Type**	**CLEC**	**City**	**Street**	**Year Deployed**
CA	5E	SUREWEST COMMUNICATIONS	ROSEVILLE	224 LINCOLN ST	2001
CA	NT5	TELIGENT	LOS ANGELES	1200 W 7TH ST	1998
CA	NT5	TELIGENT	OAKLAND	1111 BROADWAY	1998
CA	DS	TIME WARNER TELECOM	BAKERSFIELD	1918 M ST	1998
CA	DM5	TIME WARNER TELECOM	FRESNO	7576 N DEL MAR AVE	1997
CA	5ESS	TIME WARNER TELECOM	IRVINE	7 MASON	2000
CA	DM5	TIME WARNER TELECOM	LOS ANGELES	3700 WILSHIRE BLVD	1997
CA	DM5	TIME WARNER TELECOM	RIVERSIDE	1110 PALMYRITA AVE	1996
CA	DMS	TIME WARNER TELECOM	SAN DIEGO	1125 NINTH ST	1999
CA	5E	TIME WARNER TELECOM	SAN DIEGO	8925 WARE CT	1996
CA	DM5	TIME WARNER TELECOM	SAN FRANCISCO	501 2ND ST	1997
CA	DM5	TIME WARNER TELECOM	SAN LUIS OBISPO	3050 BROAD ST	1997
CA	DMS	TIME WARNER TELECOM	WALNUT CREEK	1340 TREAT BLVD	1996
CA	5E	U.S. TELEPACIFIC	LOS ANGELES	800 W 6TH ST SUITE 300 3RD FLOOR	1998
CA	5E	U.S. TELEPACIFIC	SAN DIEGO	6134 NANCY RIDGE DR	2000
CA	5E	U.S. TELEPACIFIC	SAN JOSE	55 NICHOLSON LN	2000
CA	DM5	URJET BACKBONE NETWORK	LOS ANGELES	624 S GRAND AVE 11TH FLOOR	2000
CA	5E	WESTERN INTEGRATED NETWORKS	NORTH HIGHLANDS	5411 LUCE AVE	2000
CA	DE4	WORLDCOM	ANAHEIM	905 EAST DISCOVERY LANE	1998
CA	5E	WORLDCOM	BAKERSFIELD	1415 18TH ST	1999
CA	5E	WORLDCOM	BAKERSFIELD	1415 18TH ST	1996
CA	5E	WORLDCOM	FRESNO	1315 VAN NESS	NA
CA	5E	WORLDCOM	FRESNO	1315 VAN NESS AVE	1996
CA	DMH	WORLDCOM	HAYWARD	21350 CABOT BLVD	2000
CA	NT5	WORLDCOM	IRVINE	17642 ARMSTRONG AVE	1997
CA	DE4	WORLDCOM	LOS ANGELES	609 W 7TH AVE	1996
CA	AXT	WORLDCOM	LOS ANGELES	1149 SOUTH BROADWAY	1996
CA	AXT	WORLDCOM	LOS ANGELES	1149 S BROADWAY ST	1996
CA	5E	WORLDCOM	REDWOOD CITY	2700 SPRING ST	1998
CA	DE4	WORLDCOM	SAN DIEGO	707 BROADWAY	1996
CA	DMH	WORLDCOM	SAN DIEGO	8806 COMPLEX DR	1998
CA	NT5	WORLDCOM	SAN DIEGO	8806 COMPLEX DR	1997
CA	DE4	WORLDCOM	SAN FRANCISCO	274 BRANNAN ST	1996
CA	AXT	WORLDCOM	SAN FRANCISCO	525 MARKET ST	1996
CA	AXT	WORLDCOM	SAN FRANCISCO	525 MARKET ST	1995
CA	NT5	WORLDCOM	SAN JOSE	611 RIVER OAKS PKY	1998
CA	5E	WORLDCOM	STOCKTON	400 E MAIN ST	1996
CA	5E	WORLDCOM	SUNNYVALE	464 OAKMEAD PKY	1996
CA	5E	WORLDCOM	WEST SACRAMENTO	2820 KOVR DR	1999
CA	NT5	XO	FREMONT	855 MISSION CT	1998
CA	DMS	XO	LONG BEACH	200 PINE AVE	1997
CA	DS	XO	LONG BEACH	200 PINE AVE	2000
CA	DMS	XO	LOS ANGELES	624 S GRAND	1997
CA	DMS	XO	LOS ANGELES	624 S GRAND	1997
CA	DM5	XO	ROSEVILLE	1390 LEAD HILL BLVD	1999
CA	DMS	XO	SAN DIEGO	5771 COPLEY DR	1998
CA	NT5	XO	SANTA ANA	1924 E DEERE AVE	1997
CA	DMS	XO	SANTA ANA	1924 E DEERE AVE	1997
CA	DMS	XO	SANTA ANA	1924 E DEERE AVE	1997
NY	5E	ADELPHIA	BUFFALO	101 LASALLE AVE	1994

CLEC Circuit Switches Serving BOC Rate Centers in California and New York					
State	**Type**	**CLEC**	**City**	**Street**	**Year Deployed**
NY	5E	ADELPHIA	SYRACUSE	6007 FAIRLAKES RD	1994
NY	5E	ALLEGIANCE TELECOM	NEW YORK	111 8TH AVENUE 14TH FLOOR	1999
NY	5E	ALLEGIANCE TELECOM	NEW YORK	60 HUDSON ST	1996
NY	5E	AT&T	ALBANY	158 STATE ST.	1999
NY	4E	AT&T	BUFFALO	65 FRANKLIN ST	1997
NY	5E	AT&T	BUFFALO	325 DELAWARE AVE	1999
NY	NT5	AT&T	HUNTINGTON	1444 E JERICHO TPKE	1999
NY	5E	AT&T	MANHATTAN	811 10TH AVE	1999
NY	4E	AT&T	MANHATTAN	811 10TH AVE	1997
NY	5E	AT&T	MANHATTAN	33 THOMAS ST	1996
NY	4E	AT&T	MANHATTAN	33 THOMAS ST	2001
NY	NT5	AT&T	MANHATTAN	33 THOMAS ST	1999
NY	5E	AT&T	MANHATTAN	67 BROAD ST	1998
NY	5E	AT&T	MANHATTAN	1 WORLD FINANCIAL (TOWER B) CTR	1997
NY	5E	AT&T	MANHATTAN	250 VESEY ST	1997
NY	5E	AT&T	MANHATTAN	216 E 45TH ST	1997
NY	5E	AT&T	QUEENS	9403 QUEENS BLVD	2000
NY	4E	AT&T	SYRACUSE	201 S STATE ST	1997
NY	NT5	AT&T	WHITE PLAINS	400 HAMILTON AVE.	1999
NY	4E	AT&T	WHITE PLAINS	360 HAMILTON AVE	1997
NY	NT5	BROADVIEW	QUEENS	3718 NORTHERN BLVD	1999
NY	NT5	BROADVIEW	SYRACUSE	224 HARRISON ST	1999
NY	5E	CABLEVISION LIGHTPATH	BETHPAGE	1111 STEWART AVE	1999
NY	5E	CABLEVISION LIGHTPATH	HICKSVILLE	111 NEW SOUTH RD	1994
NY	5E	CABLEVISION LIGHTPATH	WHITE PLAINS	151 FULTON AVE	2001
NY	5E	CHOICE ONE	ALBANY	80 STATE ST	1999
NY	5E	CHOICE ONE	BUFFALO	350 MAIN ST	1999
NY	5E	CHOICE ONE	SYRACUSE	110 W FAYETTE ST	1999
NY	EWSD	COMAV	BROOKLYN	25 CHAPEL ST	1998
NY	5E	CONVERSENT	MELVILLE	201 OLD COUNTRY RD	2000
NY	5E	CORE COMMUNICATIONS	MANHATTAN	67 BROAD ST	2000
NY	DMH	CTSI	SYRACUSE	201 S STATE ST	2000
NY	5E	E.SPIRE	NEW YORK	75 BROAD STREET 3RD FLOOR	1999
NY	5E	EAGLE COMMUNICATIONS	MANHATTAN	60 E 56TH ST	2000
NY	5E	EAGLE COMMUNICATIONS	MANHATTAN	601 W 26TH ST	1999
NY	D12	FAIRPOINT	CHATHAM	19 RAILROAD AV	1992
NY	NT5	FOCAL COMMUNICATIONS	MANHATTAN	325 HUDSON ST	2000
NY	NT5	GLOBAL CROSSING	ALBANY	11 N PAERL ST SUITE 2000	1999
NY	NT5	GLOBAL NAPS	MANHATTAN	1 FINANCIAL SQ	2000
NY	DS	ICG COMMUNICATIONS	MANHATTAN	67 BROAD ST	1999
NY	NT5	INTERMEDIA COMMUNICATIONS	MANHATTAN	160 W BROADWAY	1997
NY	DM5	INTERNATIONAL TELCOM	MANHATTAN	160 W BROADWAY	1999
NY	DS	LEVEL 3	ALBANY	314 N PEARL ST	2001
NY	DS	LEVEL 3	BUFFALO	240 SCOTT ST	2001
NY	DCO	METROPOLITAN TELECOMMUNICATIONS	MANHATTAN	67 BROAD ST	2000
NY	DE4	METTEL	HEMPSTEAD	875 MERRICK AVE	1998
NY	D12	MIDHUDSON_COMM	ALBANY	11 N PEARL ST	1999
NY	DMS10	NECLEC LLC	NEW YORK CITY	32 OLD SLIP 4TH FLOOR	2000
NY	NT5	NET2000	MANHATTAN	325 HUDSON ST	1999
NY	DM5	NET-TEL CORP.	MANHATTAN	67 BROAD ST	1999

CLEC Circuit Switches Serving BOC Rate Centers in California and New York					
State	**Type**	**CLEC**	**City**	**Street**	**Year Deployed**
NY	NT5	NORTHLAND NETWORKS	SYRACUSE	500 S SALINA ST	1998
NY	MFS	NORTHLAND NETWORKS	UTICA	258 GENESEE ST	2000
NY	VCD	PAETEC	ALBANY	1 COMMERCE PLZ	1999
NY	5E	PAETEC	MANHATTAN	111 8TH AVE.	1999
NY	5E	RCN	MANHATTAN	333 W. HOUSTON ST	1997
NY	5E	RCN	QUEENS	3316 WOODSIDE AVE	1999
NY	NT5	TELIGENT	MANHATTAN	111 8TH AVE	1998
NY	NT5	THOUSAND ISLANDS COMMUNICATIONS	WATERTOWN	130 PARK PL	2000
NY	5E	TIME WARNER TELECOM	COLONIE	10 AIRLINE DR	1999
NY	DMT	WARWICK VALLEY TELEPHONE COMPANY	MIDDLETOWN	24 JOHN ST	1999
NY	DS	WESTELCOM NETWORKS	PLATTSBURGH	24 MARGARET ST	2000
NY	AXT	WORLDCOM	BUFFALO	325 DELAWARE - 1ST F	1994
NY	5E	WORLDCOM	BUFFALO	325 DELAWARE AVE	2000
NY	DMH	WORLDCOM	GARDEN CITY	845 STEWART AVE	1998
NY	DMS	WORLDCOM	NEW YORK	111 8TH AVE	1996
NY	AXT	WORLDCOM	NEW YORK	111 8TH AVE	1996
NY	NT5	WORLDCOM	NEW YORK	60 HUDSON ST	1995
NY	NT5	WORLDCOM	NEW YORK	560 WASHINGTON ST	1997
NY	5E	WORLDCOM	WESTBURY (NASSAU)	48 SWALM ST	1997
NY	5E	WORLDCOM	WHITE PLAINS	20 CHURCH ST @ MAIN ST	1997
NY	NT5	XO	MANHATTAN	111 8TH AVE	1998
NY	DMS	XO	NEW YORK	75 BROAD ST	2000

APPENDIX C. REGRESSION STATISTICS FOR FIGURE 9

Regression Statistics	
Multiple R	0.018943218
R Square	0.000358846
Adjusted R Square	-0.041292869
Standard Error	56.14694118
Observations	26

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	27.15981654	27.15981654	0.008615384	0.926817767
Residual	24	75659.49611	3152.479004		
Total	25	75686.65592			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	209.8146645	14.80338316	14.17342659	3.70534E-13	179.2619895	240.3673394	179.2619895	240.3673394
X Variable 1	-0.022700648	0.244568735	-0.092819092	0.926817767	-0.527465604	0.482064309	-0.527465604	0.482064309

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*
1	209.6529453	35.98208499
2	209.7113612	-68.37899611
3	209.1778066	118.5399595
4	209.8056957	35.46994284
5	209.3669137	-51.98752384
6	208.4575955	139.3033201
7	208.7242999	-40.85967442
8	207.4599712	-34.0627992
9	209.5238483	21.85584432
10	207.8194362	-31.89292248
11	208.9937323	-0.961809023
12	209.6423199	16.27995673
13	209.641484	2.405122565
14	206.369772	-10.67938401
15	209.4225344	-5.819058164
16	207.3447567	-38.21400877
17	209.4930221	-23.33881879
18	208.8134942	-61.76747334
19	209.6412957	-58.29928461
20	208.2683519	-28.35850641
21	209.3924241	-52.00711209
22	206.2176843	47.94713452
23	209.3868316	106.6086299
24	209.7976121	2.150691122
25	209.4883823	11.62491737
26	209.6905844	-31.54023269

ATTACHMENT D

William P. Barr
Executive Vice President and General Counsel

Verizon Communications
1095 Avenue of the Americas
New York, NY 10036

Phone 212.395.1689
Fax 212.597.2587

July 16, 2002

Honorable Michael Powell
Chairman
Federal Communications Commission
445 12th Street, SW
Washington, DC 20544

Dear Chairman Powell:

I congratulate you on the Commission's victory in the Supreme Court in the TELRIC pricing cases. The Commission, its staff, and its lawyers demonstrated a great deal of dedication in defending its rules in the various stages of litigation, and you have every reason to be proud of their efforts.

The Court's decision establishes that the Commission had the authority under the 1996 Act to adopt TELRIC as the pricing methodology for unbundled elements. It does not, however, resolve either the numerous disputes about how the existing rules should be interpreted and applied, or whether those rules should be modified to ensure the appropriate incentives for efficient investment, entry, and other competitive decisions by all providers. As you are no doubt aware, parties routinely offer views as to the meaning of TELRIC in the course of section 252 arbitrations and section 271 proceedings that differ starkly from the views expressed by the Commission before the Supreme Court, and states themselves have adopted (and continue to adopt) interpretations that depart widely from those views as well.

Accordingly, the Commission should provide greater guidance as to how the existing rules can be applied in the most economically appropriate manner possible, and ultimately modify the rules to the extent necessary to ensure they send the right economic signals to all providers. It can do so through a number of proceedings: in its review of section 271 applications, in the *Triennial Review* rulemaking, where a number of parties have already raised pricing issues, and in any arbitration or other such proceeding that may come before the Commission.

With respect to the existing rules, the disputes typically center on five key issues that are central to an economically appropriate forward-looking pricing scheme. As previously explained by a number of prominent economists including Dr. Alfred Kahn and this Commission's former chief economist, Dr. Howard Shelanski, additional clarification with respect to each will help produce forward-looking cost-based prices that are more appropriate for use in today's marketplace.

First, the Commission should further clarify the appropriate calculation of the cost of capital. While the Court endorsed the use of the currently authorized 11.25% rate of return as a reasonable starting point, it agreed with this Commission's conclusion that this figure should be "adjusted upward" to the extent that the relevant risks warrant doing so. As the Commission explained to the Court, "an appropriate cost of capital determination takes into account not only existing competitive risks . . . but also risks associated with the regulatory regime to which a firm is subject." (FCC Reply Brief at 12 n.8.)

Both these types of risk require an upward adjustment to the 11.25% starting point. As the Fact Report filed on behalf of Verizon and others in the *Triennial Review* demonstrates, both today and going forward, incumbents face significantly greater competitive risks from both intramodal and intermodal competitors who have made substantial investments in their own facilities than when the Commission adopted the pricing rules. Moreover, the regulatory risks inherent in the competitive market assumptions embodied in TELRIC – such as the assumption that the network is replaced with the most efficient technology currently available – also require an upward adjustment to the cost of capital. Indeed, AT&T and WorldCom's own economic expert has conceded that "all the model assumptions have to be consistent. So, to the degree that it requires a competitive market to get all of the other assumptions, that would be true of the cost of capital as well."

Thus, because TELRIC requires that prices be set based on various competitive assumptions, the cost of capital calculated under TELRIC must reflect the risks associated with those assumptions. The Commission accordingly should make clear that an 11.25% cost of capital that was based on the risks an incumbent faced in the absence of competition must be adjusted upward to reflect the competitive and regulatory risks an incumbent faces providing unbundled elements priced at TELRIC. Indeed, the principal proponents of TELRIC use a materially higher cost of capital when it comes to making their own business decisions. At a minimum, a reasonable application of TELRIC principles should incorporate a cost of capital no lower than that employed by these competing providers themselves.

Likewise, a reasonable application of the existing rules must include an appropriate factor to take into account the uncollectibles that will be experienced by the carriers providing unbundled elements. As with any start-up enterprises, it is to be expected that a portion of the charges incurred by carriers utilizing unbundled elements will become uncollectible. Experience to date has borne out this expectation, with uncollectible levels substantially higher than those historically incurred for other customers. If this fact is not reflected in the underlying prices, the carrier providing the unbundled element is left holding the bag. Accordingly, a reasonable forward-looking pricing standard must fully account for the expected level of these uncollectibles, and, in doing so, must take into account ongoing developments in the marketplace.

Second, the Commission should further clarify the appropriate treatment of depreciation. Here again, the Court agreed with the Commission that TELRIC permits variations from regulatorily prescribed depreciation lives, particularly when those prescriptions are demonstrably out of date. At an absolute minimum, the Commission should make clear that the starting point

should be the same lives that are used for financial reporting purposes in accordance with well-recognized accounting principles. The Commission itself has previously approved the use of financial reporting lives in connection with section 271 applications by Verizon in Pennsylvania and Southwestern Bell in Oklahoma. Such lives are intrinsically forward-looking and are updated frequently to reflect technological and other changes that affect the length of an asset's economic life. By contrast, regulatorily prescribed lives are often not nearly as current – some parties have advocated the use of regulatory lives set as long ago as *1994*, even before the Act was passed – and are not appropriate for use even as a starting point in the marketplace of today and tomorrow.

Third, even in a TELRIC study, the assumed technology mix cannot be inconsistent with the limits of such technology. As an initial matter, although the Commission's rules and now the Court have expressly found that TELRIC requires only the use of *currently available* technologies, CLECs, and some states, have continued to base costs on theoretical or allegedly foreseeable technologies. The clearest example of this fallacy is the assumed use of the GR-303 interface in connection with digital loop carrier technology. It is neither rational nor cost-minimizing to deploy GR-303 over the long run given rapidly changing technology. Moreover, as the Commission itself recently found in connection with BellSouth's 271 application for Georgia, unbundling standalone loops using integrated digital loop carrier technology with GR-303 simply is "not practicable." Although some parties claim that such unbundling is *theoretically possible* (though not currently available), that is not the standard.

More generally, the Commission should clarify that, even for a replacement-cost model such as TELRIC, while it may require a firm to consider the *possibility* that all inputs (except wire center locations) may be varied, it does not require a firm to assume that all of its current inputs are *instantaneously* replaced with what appears to be the best or least cost technology today, or to assume false economies that supposedly would result from such an instaneous replacement. The Commission already has recognized this point in its decisions concerning the appropriate mix of switching technologies. Although an instantaneous, one-time replacement model presumably would result in only new switches perfectly sized to meet current and expected future demand, the Commission has made clear in both its Rhode Island and Georgia/Louisiana 271 orders that it is perfectly appropriate to assume a mix of new switches and growth additions and other incremental upgrades.

Nor can an extreme instantaneous and ubiquitous replacement approach be justified on the theory that the value of existing assets and therefore costs are immediately driven down to the value of the current least-cost technologies. While the costs of new technologies may have a constraining effect on the value of existing facilities, the scope of that effect depends on a complex interaction of different variables and in many cases will not actually lower the cost of providing service with the existing asset. To take one simple example, if Boeing were to develop a new, more efficient commercial aircraft, no airline would instantaneously replace all the planes in its fleet with this new type of aircraft. Moreover, the ticket prices for airline seats would not be instantaneously reduced to reflect the lower operating costs of the new type of plane. This latter point is critical because the market at issue in UNE proceedings is not the sale of the underlying asset (such as the plane), but *services* provided over that asset (a ride between two

cities). Thus, even if the development of a new switch would constrain the resale value of an older switch in the secondary market, it does not follow that the rate for leasing capacity on the older switch would instantaneously be reduced to the cost of leasing capacity on a hypothetical network having all new switches.

Fourth, the Commission should recognize that existing fill factors in incumbent networks, which reflect the amount of spare capacity available to account for administrative needs, demand fluctuations and churn, breakage, and growth, represent a reasonable estimate for purposes of a TELRIC study. Verizon has clear incentives, due to both competitive pressures and price-cap regulation, to reduce the amount of such spare as much as possible so as to lower its costs. At the same time, there must be sufficient spare to meet relevant service quality requirements so that, for example, Verizon can provision second lines or meet spikes in demand in a particular location within the time period required by a state commission.

For example, the fill factors observed in Verizon's network are the by-product of its efforts to design and engineer a network that best balances the relevant considerations. These factors have remained remarkably stable, notwithstanding changes in technology and demand, and there is no reason to believe that they will or should increase in a forward-looking network. On the contrary, there is strong reason to believe that fill factors are at least as likely to decline as to increase. Traffic increasingly is being diverted to the networks of intermodal competitors such as wireless and cable companies. In fact, as the Commission's own ARMIS data shows, traffic volumes already have decreased in many instances. As a result, while a TELRIC network built today would have to include sufficient capacity to handle both current volumes and any growth or spikes in demand that may occur in particular locations, the average fill factor going forward is as likely to be lower as it is to be higher.

Fifth, the Commission should continue to make clear that carriers are entitled to recover the non-recurring costs they incur to make unbundled elements available. While the Commission previously held precisely that, some parties continue to claim (with varying degrees of success) that these costs should be ignored, typically on the theory that the tasks would be costless in some purely hypothetical future network. But the Commission has rejected this very claim in the context of loop conditioning charges where some of the same parties argued that conditioning would not be required in an ideal future network. As it has in the past, the Commission should continue to make clear that these very real costs must be recovered from the carriers on whose behalf they are incurred.

In addition to clarifying how the existing rules should be interpreted and applied so as to be as economically appropriate as possible, the Commission also should consider modifications to those rules to make them appropriate for use in today's competitive marketplace. In particular, the Commission should alter its methodology to eliminate the assumption that the existing network is completely "reconstructed" to reflect a technology mix that goes beyond what likely will ever be in place in any real-world network.

A more economically correct approach would look to what the network is expected to look like during a reasonable, forward-looking planning period over which it is possible to

predict what technologies will be deployed in the network. In a market with rapidly changing technologies, such a period may be in the range of three to five years, which, as the Court observed, also is the typical length of interconnection agreements. Because the network that will be in place during such a planning period represents the forward-looking network the incumbent will use to provide unbundled elements, the cost of that network is the most economically correct measure of forward-looking costs.

As Drs. Kahn and Shelanski have explained, it also is the economically appropriate target for competing providers to shoot at as they make investment decisions of their own. If they are able to deploy more efficient technologies than the incumbent has in place, or deploy them in a more efficient manner, then they should do so. This, in turn, will prompt the incumbents to invest in efficiency-enhancing measures of their own, and so on as the cycle continues. This is the essence of what economist Joseph Schumpeter termed the process of "creative destruction" that is central to the workings of a market economy. And it is critical to instilling all competing providers with the incentive to make economically rational investments in the telecommunications sector.

In sum, this letter touches on a few key issues that have arisen concerning how TELRIC is to be interpreted and concretely applied in setting rates and whether it should be modified to better estimate forward-looking costs. These same disputes have been, and continue to be, echoed in section 252 arbitrations and 271 proceedings across the country. The Commission can and should use proceedings before it to resolve some of these fundamental pricing issues. Doing so will provide much-needed additional certainty and reduce the burden that these proceedings place on the resources of carriers and state commissions alike. More fundamentally, Commission resolution of these issues can help ensure that TELRIC is interpreted in the most economically appropriate manner so that UNE prices provide the best possible market signals to ILECs, CLECs and intermodal competitors alike, a result that is critical to the continued investment by all competing providers.

Sincerely,

WPBarr (by MK)

William P. Barr

Cc: Commissioner Abernathy
Commissioner Copps
Commissioner Martin